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# THE ECONOMICS OF TOTAL WAR

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THE CENTURY STUDIES IN ECONOMICS
WILLIAM H. KIEKHOFER, EDITOR

# THE ECONOMICS OF TOTAL WAR

BY

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*"Defense . . . is of much more importance than opulence. . . ."*

—ADAM SMITH

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*TO EDWARD MEAD EARLE*

# PREFACE

The relationships between war and the economy can be reduced to three fundamental categories: (1) economic motives and situations may be operating as a cause of war; (2) economic weapons have come to be powerful means of carrying on war; (3) war is a social phenomenon that does not terminate in itself but has far reaching effects upon the economy and other phases of the social life of belligerents and neutrals. In the arrangement of the present book the relationships between war and the economy are discussed in the following order. Chapter I deals with economic causes of war; Chapters II to XI, in the main, with economic means of warfare; and Chapter XII with economic effects of war or what is commonly called the economic aftermath of war.

In writing *The Economics of Total War* I have endeavored to present a realistic analysis of these relationships. The principal emphasis is upon economic means of warfare. The science of wartime economic policies is not altogether new. In a sense, war economics is as old as economics, and its problems were recognized by the classical masters when they placed military affairs upon the agenda of liberal action. It was, however, only after industrial society had reached a higher level of maturity that the economic aspects of war became paramount. This historical coincidence explains, in part, why the Cambridge school and its disciples elsewhere have contributed so much to war economics. To a large measure, the theoretical content of the present book reflects the influence of Pigou, Keynes, Hicks, and Mrs. Robinson.

Of late, there has been a powerful reaction against earlier tendencies to overrate the purely financial and fiscal aspects of war economics. Men and materials, it is pointed out, are the sinews of war, not money. The task of finance in war is defined by the *Economist* as "to see that nothing is decided on financial grounds." On the

whole, this reaction must be considered as healthy. But it goes without saying that proper financial policies are of considerable help in strengthening efficiency and morale. It is by means of these policies that the burden of war is distributed among the various groups of the population. But apart from this consideration there is only one test of financial policy in wartime: does it help to win the war? Nations which are more anxious to preserve their wealth than their freedom are bound to lose freedom and wealth.

In the recent discussion of war economics there has been some confusion about the relative role of operations within the framework of the price system, and of direct controls over production and consumption. The war economy of the modern industrial society is a hybrid in the sense that the price system is blended with direct economic controls. The wartime economic history of democratic Britain indicates that both are indispensable and that it would be ill-judged to grant the totalitarian enemy a monopoly over direct economic controls and the efficiency which their application entails in wartime. But this efficiency is, of course, conditioned by the manner in which the national character is likely to respond to such controls.

While the writing of this book was in progress, there occurred constant changes on the international scene and the preparedness economy of the United States was gradually placed on a war footing. I have endeavored to detach myself from the changing events of the day and to emphasize general principles rather than ephemeral facts. I have been aware, however, of the fact that a higher level of abstraction has little meaning if its assumptions are not made clear, assumptions which are grounded in the institutional setting in which the various nations find themselves. To make the discussion realistic, I have presented theory and institutions, war economics and wartime economic policies. While the main emphasis has been placed upon the policies of the United States, the policies of other nations at war have been given proper attention. This seemed particularly advisable with respect to Britain, which had to go all the way from a welfare to a war economy within a few months. Her trials and

experiences will be of considerable help in understanding the problems confronting the United States.

I wish to express my thanks to my friends and associates, John T. Farley and Dr. Gordon B. Strong, with whom I had the privilege of discussing various problems relating to the present book. I am under a special obligation to my former teacher, Dr. William H. Kiekhofer, general editor of the Century Studies in Economics, who has made numerous suggestions for the improvement of the manuscript. As teacher of economic theory and as editor, Professor Kiekhofer's counsel has been invaluable.

The dedication of the book to Edward Mead Earle is meant to be a token of gratitude for his unfailing efforts to stimulate the study and science of the social aspects of war.

HENRY WILLIAM SPIEGEL

Pittsburgh,
Pennsylvania

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# THE ECONOMICS OF TOTAL WAR

# CHAPTER I

## ECONOMIC CAUSES OF WAR

Is war, or, are all wars, caused by economic factors? Do economic factors operate alone or in conjunction with other causes? Is aggressive warfare, as an instrument of national policy, a suitable means to attain economic improvements? Are the costs of aggressive warfare proportionate to these improvements? These and similar problems will be discussed in the present chapter, in which war is treated as a means to certain ends.

Economic factors which promote war can be conceived either as interests in or as situations conducive to war. If there is interest in warfare, the realization of the interests may require a successful outcome of the war, or, warfare as such may suffice. In certain respects, the case where the outcome of the war is irrelevant is related to another, where economic interests do not, overtly or covertly, promote war but are responsible for conditions which make for war. There is finally the case where there exist economic conditions or situations which are conducive to war but for which nobody can be justly held responsible.

Upon the basis of these distinctions the economic causes of war can be summarized as follows: (1) economic objectives of war; (2) economic interest in warfare; (3) economic situations or conditions making for war.

*Economic factors neither exclusive nor final.*—It is of course possible that a concrete instance of warfare has been brought about by the joint operation of these causes and it is likewise possible that the combination of causes contained factors which cannot be classified as economic at all. In other words, economic factors are not exclusive. Nor are economic motives final. As Professor Knight has put it, "the economic interest is never final; it is an interest in the efficacy of activity, and of the use of means, in promoting real or final interests

of any sorts." Even such "economic" interests as that in food are not final but motivated by social standards rather than by biological need.[1] This view has been endorsed by Karl Mannheim who likewise emphasizes that economic interests are not final, "but that other values are set on apparently material things, and that the human struggle really revolves around these inherent valuations. Once this is understood, the new problem arises under what conditions these valuations become attached to material goods. When, for instance, do food and housing carry social prestige, and when can the desire for prestige be satisfied by badges and titles?" [2]

Applied to war these considerations entail that the economic motives of war are not final but are a means to further some other end, such as the prestige of the aggressive country and its desire for domination and power.

*War as an end in itself.*—It is also conceivable that a country may go to war without being motivated by any "ulterior" interest, real or imaginary, economic or otherwise. War then becomes an end in itself. Such type of warfare is related to older forms of social association where the stranger was regarded as enemy and primitive tribal communities engaged in permanent or semi-permanent warfare. It was germane to this specific environment where the lust to kill did not require the additional stimulation of further motives conducive to war. In those times the social fabric was so loosely knit that war did not cause serious disturbances and lasting maladjustments. In more recent times civilization and material progress seemed to have banished this type of warfare. Modern wars, so it seems, are fought for a purpose or goal, such as territorial gains, maintenance of dynasties, propagation of civilization or religion, the conquest of markets and of sources of raw materials.

A purpose or goal must be distinguished from an occasion. An occasion is a cause that could not have produced the consequence by itself. Wars may be occasioned by such incidents as a border strife, the murder of a diplomat, or an insult to the flag of a country.

[1] F. H. Knight, *The Ethics of Competition* (New York and London, Harper and Brothers, 1935), p. 314.
[2] K. Mannheim, *Man and Society in an Age of Reconstruction* (New York, Harcourt Brace and Company, 1940), p. 282.

## Economic Objectives of War

Economic objectives may be operating as motives of war if it is believed that the successful conclusion of a war will bring about a desired change in the production or distribution of wealth among the belligerents or other countries. The motive may operate overtly or covertly, among the whole population or among special groups. The existence of such motives cannot well be denied. The problem which concerns us here is that of the rationality of these motives, *i.e.*, whether or not war is a proper means leading to the attainment of certain economic objectives.

In general, economic war aims call for the extension of territorial sovereignty. The most important types of such aims are the following: (1) "living-space"; (2) raw materials; (3) markets; (4) investment outlets.

*The quest for "living-space."*—The quest for "living-space," or population outlets, is usually based upon a comparison of the density of population in various countries. The arithmetical density, which is obtained by dividing the number of inhabitants of a country by the number of its square miles, happened to be forty for the whole world at the outbreak of the war in 1939. It was as high as 700 in England and Belgium and as low as two in Australia. Within these extremes the arithmetical densities of the other countries vary. It is, for example, forty in the United States.

All countries which have been mentioned so far enjoy a high standard of living, and the standard of living in the countries with the highest arithmetical density compares favorably with the standard of living in the country with the lowest arithmetical density. It seems therefore that the measurement of arithmetical densities does not supply a basis for the claim for more "living-space." The measurement of the arithmetical density of population indeed has very little meaning. It could be an index of over- or underpopulation only if all other conditions were everywhere alike: if each country had the same human and material resources, the same characteristics of location, the same technological, educational and marketing facilities, the same outlets for its foreign trade. Conditions of this type are different

everywhere, and the mere number of people per square mile does not measure these differences.

Since the arithmetical density is generally regarded as an inadequate measurement of population density, various attempts have been made to supply better tools for the measurement of population density. They include the physiological, agricultural, and general economic densities of population. The physiological density indicates the number of inhabitants per square mile of arable land. Before the outbreak of the war in 1939 it was 221 for the United States and 2,265 for England. At first glance, a comparison of these figures might be indicative of conditions of starvation in England. However, this conclusion would be correct only if the English people produced all their foodstuffs at home and did not engage in any other type of production and in foreign trade. The physiological density measures only the agricultural capacity of a country, without indicating differences in fertility and in reliance upon home production.

Similar defects are inherent in all other measurements of density. The agricultural density indicates the agricultural population per square mile of arable land. However, only agricultural regions which are similar in all respects can be compared in this manner. Other attempts aim at measuring "economic density" by calculating the annual iron and steel production, or the coal and iron reserves, per head of the population. Figures of this type do not lend themselves to any kind of interpretation which goes beyond their direct meaning. They measure just one of the innumerable factors which determine economic life. Only if all these factors were exactly alike in the countries to be compared, would annual iron and steel production or the coal and iron reserves per head of the population be a true measure of economic density.

A complete and true measurement of population density would require a calculation of the ratio of the population to all human and material resources and to all conditions which determine the standard of living. The verification of these conditions requires a large amount of fact-finding and the refinement of statistical techniques before they can be subject to quantitative treatment; others do not lend themselves to such treatment at all. The nearest approach to a true

measurement of economic population density is presented by such figures as per capita income and by indexes of the standard of living which take the distribution of wealth and income into account.

The argument thus returns to its point of departure. Over- or under-population cannot be demonstrated by any naive measurement of population density. Modern population theory has substituted for these concepts that of an optimum population which maximizes income, wealth or welfare. Over-population exists when the size of the population exceeds the optimum, and under-population when it is below it. This concept is highly dynamic and varies with the state of the arts and various other factors. Exception might be made to its vagueness and to the fact that it has proved extremely difficult to submit it to quantitative analysis. However, experience and observation demonstrate that there is no correlation, positive or negative, between population density and the available indexes of material welfare. Countries like England, Belgium and Australia combine the highest and lowest population density with a most favorable standard of living. Belgium even opened her doors to foreign immigration during the 'twenties, certainly no symptom of over-population. A comparison of the relative standards of living and population density in various countries is presented in the following table (p. 8), which demonstrates that there is no basis in population figures for the quest for "living-space."

There are further indications that this claim for territorial expansion has not been made in good faith. The same countries which during the past decade complained loudest about their alleged over-population have spared no efforts to increase their population by stimulating the birth-rate and prohibiting emigration. Germany's "population pressure" did not prevent her from importing hundreds of thousands of foreign farm hands who helped during the harvest season and then returned to their homes in the South and East of Europe. In 1941 Japan joined Italy and Germany in a policy aiming at stimulating the birth-rate with the goal of restoring her former birth-rate of 36, one of the highest in the world. These policies go hand in hand with constant complaints about over-population.

For the sake of argument, let us suppose that the claim for "living-

space" is justified. Then the question arises whether territorial expansion by means of warfare, under modern conditions of living, is apt to create population outlets. Experience indicates that territorial expansion offers no such outlets for any considerable number of people. The whole population of the African continent, the centre of the

TABLE 1.—RANKING OF 29 COUNTRIES WITH RESPECT TO AVERAGE REAL INCOME AND DENSITY OF POPULATION, ABOUT 1930 *

| | *Average real income* | *Density of population* | | *Average real income* | *Density of population* |
|---|---|---|---|---|---|
| United States | 1 | 8 | Czechoslovakia | 16 | 23 |
| Canada | 2 | 2 | Greece | 17 | 13 |
| New Zealand | 3 | 3 | Finland | 18 | 6 |
| Great Britain | 4 | 27 | Hungary | 19 | 21 |
| Switzerland | 5 | 22 | Japan | 20 | 26 |
| Australia | 6 | 1 | Poland | 21 | 20 |
| Netherlands | 7 | 28 | Latvia | 22 | 10 |
| Eire | 8 | 12 | Italy | 23 | 24 |
| France | 9 | 17 | Estonia | 24 | 9 |
| Denmark | 10 | 19 | Yugoslavia | 25 | 14 |
| Sweden | 11 | 7 | U.S.S.R. | 26 | 4 |
| Germany | 12 | 25 | Bulgaria | 27 | 15 |
| Belgium | 13 | 29 | Rumania | 28 | 16 |
| Norway | 14 | 5 | Lithuania | 29 | 11 |
| Austria | 15 | 18 | | | |

* For the basic data see Colin Clark, *The Conditions of Economic Progress* (New York, The Macmillan Company, 1940), p. 41, and League of Nations, *Statistical Yearbook*, 1931–32.—1 denotes highest average real income and lowest population density.

colonial ambitions of the European powers, has increased by no more than one-half during the past 300 years. This compares with a 130 fold multiplication of the population of the present area of the continental United States, a five-fold multiplication of the European and a four-fold multiplication of the Asiatic population during the same period. European net emigration to European controlled colonies during the past fifty years amounts to less than one-thousandth of the

present population of Europe. As the late Grover Clark put it, "the record is sufficient to make it seem almost incredible that any reasonable person ever should have argued seriously that acquisition of political control over colonial territories would transform those areas into important outlets for population. . . . Climate, political revolt, economic opportunity, and available space have been far more powerful factors in determining the direction of emigration from Europe than all the patriotic sentiment to 'build up the empire' which the expansionists have been able to arouse and all the pressure they have been able to put on their people to follow the flag when they left the home country." [3] Up to the World War of 1914, Italy had placed only 8,000 of her people in all her African colonies. On July 1, 1914, there were only 24,000 Germans, including 16 percent soldiers and policemen, in the German colonial empire. The annual average of Germans emigrating to all Africa, including the territories not under German sovereignty, was 33 from 1904 to 1913, and had risen to 955 from 1925 to 1934, when no African territory was under German sovereignty. Expressed as percentages of the total German emigration to overseas countries these figures amount to .13 and 2.5 percent, respectively. Of the annual increase of the German population, emigration to all Africa absorbed only .0004 percent (*i.e.*, 4 per 1,000,000) and .27 percent (*i.e.*, nearly 3 per 1,000), respectively. Total German overseas emigration absorbed 3.5 and 10.8 percent of the population increase during the periods referred to.[4]

Japan's record in Korea is no more impressive since there is only a slight excess of Japanese emigration to Korea over Korean emigration to Japan. The migration from Japan to all her colonies absorbed only 2.5 percent of the increase of the Japanese population during the period from 1925 to 1933. Battles for territorial expansion have proved a more efficient outlet for population than territorial expansion secured by such battles. There were about as many Japanese soldiers killed in the Russo-Japanese War which opened up Manchuria

[3] From Grover Clark, *A Place in the Sun* (New York, The Macmillan Company, 1936), pp. 89, 85. By permission of The Macmillan Company, publishers.
[4] Norman Angell, *This Have and Have-Not Business* (London, Hamish Hamilton, 1936), pp. 204f.

to Japanese immigration as there were Japanese immigrants to Manchuria during the quarter century subsequent to that war.[5]

Korean migration to Japan illustrates a further fallacy implied in the belief in the absorbing capacity of sparsely populated as contrasted with densely populated territories. This migration followed an exactly reversed pattern. It was the most densely populated part of Japan to which considerable numbers of Koreans moved from their own country.[6] Not density or lack of density of population but economic opportunities account for the direction of migration. Under the impact of our industrial civilization economic opportunities are often more ample in densely than in sparsely populated territories. The pull which has drawn migrants into the orbit of regions with ample economic opportunities, and the push from regions where such opportunities are scarce account, to a large extent, for external as well as internal population movements, the rural exodus, and the association of high population density and a high standard of living. However, push and pull do not operate unless the individual is motivated by economic considerations in terms of standards of living and is not hampered in his mobility by legal or administrative obstacles on the part of his home country or on the part of the country of his choice.

It remains to be seen whether the advent of barbarism in Europe may lead to new forms of military conquest and territorial expansion more conducive to inter-European migration. Hitler has stated that the exclusive solution of the German "population problem" as seen by him is an increase in the area of the mother country.[7] That would imply the superimposition of German masters upon the conquered territories. Territorial expansion may offer outlets for the population of the conqueror if conquest assumes forms and creates conditions germane to ancient barbarism. Such forms and conditions, however, do not fit into the general pattern of modern industrial civilization. Industrial life cannot flourish in countries which are subdued under

[5] Clark, *op. cit.*, pp. 109, 112.

[6] E. F. Penrose, *Population Theories and Their Application with Special Reference to Japan* (Stanford University, California, Food Research Institute, 1934), p. 187.

[7] Adolf Hitler, *Mein Kampf*, complete edition (New York, Reynal and Hitchcock, 1940), p. 950.

the yoke of a foreign conqueror. The gain which the master race can exact from the enslaved population of such countries falls short by a large margin of the gain which would result from peaceful commercial intercourse in the "great society."

In Nazi-dominated Europe, there has been a considerable movement of population into the conquered countries. Stimulated by various incentives (see below, p. 310), the Germans descended like locusts upon the vanquished, exploiting their wealth according to all rules of "scientific looting" and placing their labor in the service of the German war machine. Terror, however, is a bad substitute for ordinary economic incentives, and prison labor lacks productiveness. Upon the basis of any reckoning, the price which in the end the enthralled people of Europe are likely to exact from their German masters, will be out of all proportion to the gains which the latter may be able to derive from their loot.

Population movements in the opposite direction, from the conquered countries to Germany, have been much larger, since Germany has enforced the labor of about 2,000,000 foreigners and prisoners of war within her territory.

*The quest for raw materials.*—The quest for raw materials is based upon the following argument. Territorial expansion, it is said, enables the conqueror to exploit the conquered territory by granting him access to raw materials which he otherwise could not get hold of at all or only under great difficulties and sacrifices. This argument, however, is fallacious since there is no shortage of raw materials. Technological progress, inventions and discoveries have brought about an increase in productivity in agriculture and in all lines of industrial endeavor and have placed at the disposal of mankind more goods than institutional arrangements permit to be distributed. Before the outbreak of the present war in 1939 the foremost economic problem in the field of primary products was not a shortage but a glut which had become the curse of these markets. It was not the buyer of these products who was confronted with difficulties but the seller. There was no discrimination against foreign buyers of colonial products. The market situation was so precarious that tin, copper, and rubber, the three most important colonial products, were subject to restric-

tive schemes established by the producers. So were many other colonial products of less importance. Other colonial products were sold at cheaper prices to foreign countries than to the mother country. In the early months of 1939 sugar was imported by Great Britain and Sweden at about half of the price which Great Britain had to pay for sugar from her own colonies and at scarcely one-third of the price paid in the United States for sugar from Puerto Rico and in France for sugar from Martinique and Guadeloupe.[8]

The situation is well illustrated by the complaints of the producers in the mother country to which competition on the part of the colonial producers has given rise. The fact that colonial products compete with those of the mother country on an equal footing and no longer are protected by tariff walls and other protective measures has occasionally ushered in the tendency to undo the expansion. The most eloquent advocates of the independence of the Philippine Islands were the sugar producers in the United States and Cuba who wanted to prevent the unhampered influx of the cheaper products of the Philippine sugar industry into the United States. With respect to the situation in Japan, Penrose reports that Japanese farmers were embarrassed by imports of colonial rice from Korea and Formosa and that "there has been a growing agitation in agricultural quarters for the imposition of restrictions on these imports. . . . As with foodstuffs, so with fuel, there has been in the recent past more concern about oversupply than about undersupply. A restriction scheme has been in operation for some years among domestic coal producers, and imports of coal even from Japanese-operated mines in Manchuria have been drastically curtailed." [9]

There are two exceptions which may be made to this refutation of the quest for raw materials. It may be said that a country can more easily utilize goods which are within the limits of its territorial sovereignty than it can afford means of payment to secure the exchange of these goods from foreign countries. To a large extent, imports from foreign countries are paid with exports to foreign countries,

[8] H. D. Henderson, *Colonies and Raw Materials* (Pamphlets on World Affairs No. 7, New York, Farrar and Rinehart, 1939), p. 20.
[9] Penrose, *op. cit.*, pp. 134, 154.

and if exports are curbed by means of tariff walls and other restrictive measures, a country will be at pains to pay for the goods it wants to import. This exception leads to the logical conclusion that a foreign trade policy which secures the free and unhampered flow of commerce among the nations of the world is a policy which makes for peace. It does not lead to the conclusion that territorial expansion, especially colonial expansion, results in the removal of the difficulty. Colonial expansion does not supply a country with the goods it desires to obtain. This it would do only if the program of expansion were carried on and continued until the whole world, colonial or not, had been conquered. Specialization and territorial division of labor have gone so far in our modern exchange economy that all nations draw upon the resources of all other nations to satisfy the requirements of their domestic economy. Contrary to popular opinion, the colonial production of raw materials is an extremely small part of total world production. There are only three raw materials which colonial territories alone produce (palm oil, rubber and copra). As has been pointed out, of these, only "rubber is a raw material of major importance for all industrial countries. The other two, palm oil and copra, form part of the large group of vegetable oils and fats . . . some of which are produced in many countries. These two commodities have no special uses for which other articles in the group are not equally suitable." Roughly calculated, "the total present production of all commercially important raw materals in all colonial territories is no more than about 3 percent of world production, a substantially smaller percentage than is the proportion (12½ percent) of the population of these territories to world population. Nor is the share of colonial territories in international trade much more important. In 1936, these territories provided 9.7 percent of world exports and took 8.1 percent of world imports. Of course, dominions and other self-governing territories have not been included in these calculations." [10]

In accordance with this over-all view, colonies supply only a fraction of the goods imported by the mother country. The proportion

[10] League of Nations, Committee for the Study of the Problem of Raw Materials, *Report* (Geneva, 1937, A.27, 1937, II, B.), p. 10.

ranges from 24 percent of total imports in France to 3 percent in Italy, and is 11 percent in Portugal, 10 percent in the Netherlands, 7 percent in the United Kingdom and 4 percent in Spain. If Germany were to obtain all the colonies under her jurisdiction before the World War and if she were to absorb all exports of these colonies, the value of the exports would amount to just about 5 percent of her total imports.[11] Before we analyze further what these imports would consist of it is well to remember that, before the World War of 1914–18, imports from Germany from her colonies, though they absorbed 44 and 33 percent, respectively, of all exports of the colonies in 1912 and 1913, amounted to only ½ percent of all German imports.[12]

The following table indicates the relative importance of the various products of the former German colonies. The calculation of the figures is based upon the assumption—obviously unrealistic—that only Germany would receive any of these products. Even then "most goods for which the territories under mandate could supply all or a

TABLE 2.—TOTAL EXPORTS FROM ALL FORMER GERMAN COLONIES IN PERCENT OF TOTAL GERMAN IMPORTS, 1936 *

| | *percent* | | *percent* |
|---|---|---|---|
| Cane sugar | 430.0 | Kapoc | 11.0 |
| Sisal | 260.0 | Coffee | 9.8 |
| Phosphates | 74.0 | Hides and skins | 4.9 |
| Vanadium ores | 67.8 | Butter | 4.2 |
| Cocoa | 64.0 | Cotton | 4.0 |
| Bananas | 57.0 | Rice | 3.8 |
| Copra | 51.0 | Rubber | 2.2 |
| Palm oil | 32.0 | Timber and wood | 1.3 |
| Palm kernels | 18.0 | Copper ores | 1.2 |
| Groundnuts | 12.0 | | |

* R. R. Kuczynski, "*Living-Space*" *and Population Problems* (Pamphlets on World Affairs No. 8, New York, Farrar and Rinehart, 1939), p. 25.—Total exports of the colonies include 390,000 ounces of gold and 187,600 carats of diamonds.

11 R. R. Kuczynski, *op. cit.*, pp. 26–27.
12 Angell, *op. cit.*, p. 203.

considerable part of Germany's requirements are to all intents irrelevant." [13]

During the period preceding the outbreak of the present war Germany had already succeeded in obtaining goods from various of her former colonies without paying for them in foreign exchange. This was accomplished by means of the truck system and similar devices.[14] The claim is now made by German writers that under German sovereignty the exploitation of the territories would furnish a larger amount of more important resources. It is possible that this is true. But the question immediately arises why a more intensive exploitation did not take place under present (pre-war) conditions. The answer is simply that such an exploitation would not have paid under the prevailing cost and demand conditions. There are other places in the world where the resources in question can be produced under more favorable conditions. A more intensive exploitation of the former German colonies such as has been proposed by German writers would necessitate changes in the cost structure to be accomplished by forced labor and starvation wages and would further dislocate the international division of labor.

The second exception to the refutation of the quest for raw materials concerns war preparation and warfare. It is said that a country which is engaged in warfare can more easily secure the supply of important material if this is available within the limits of its territorial sovereignty. However, this argument is not conclusive. In wartime, sovereignty over colonial possessions entails no guarantee of undisturbed supplies. Such a guarantee is given only if the country in question has mastery over the seas and controls the lines of communication and transportation. If this is the case, territorial sovereignty over colonial possessions will of course be of help in securing some of the supplies required for the war.

As the argument stands now it implies that territorial expansion by means of war, which secures raw materials, is of value for future wars. Thus it is no economic improvement which is fostered by territorial expansion but more warfare. Correspondingly the concept

[13] Kuczynski, *op. cit.*, p. 26.
[14] *Ibid.*, p. 23.

of autarchy denotes something much more pernicious than economic self-sufficiency, and the drive towards self-sufficiency must be understood as an expression of the desire for mastery over a constantly expanding territory. There can be no real self-sufficiency until the expansion extends over the whole world.

*The quest for markets.*—Territorial expansion, it is said, is apt to enlarge the trade area of the victorious country and enables it to dispose of its goods in the greater territory. Under conditions of free trade among nations there would not be much necessity for territorial expansion in order to provide markets, since there would be no essential differences between the disposal of goods in the home market and in foreign markets. Not so under conditions of protectionism and other barriers to foreign trade as they have grown strong during the years following the World War of 1914–18 and the Great Depression.

It has however been shown that the cost of colonial possessions is greater than the commercial benefits derived from them. As Professor Clark expressed it, "the traders' books may show satisfying balances on colonial trade, but the taxpayers, and not the traders, pay the costs." [15] This consideration weighs even more heavily if the costs of colonial defense are taken into account, and the costs of the wars which are fought to maintain colonial possessions.

Italy's exports and imports to and from her colonies amounted to 5,561,000,000 lire between 1894 and 1932. During the last twenty years of this period, Italy spent 6,856,000,000 lire on her colonies. This figure does not include the cost of the wars which have been fought by Italy in order to acquire her colonies. The costs of the Ethiopian conquest, to refer to an example of the recent past, are considerably higher than any commercial benefits which may be derived by Italy from the possession of this territory.

The German record is very similar. During the twenty years which preceded the World War of 1914–18 Germany spent more on her colonial possessions than the total value of her trade with the colonies. It is only in the case of Japan that direct expenditures on her colonies

[15] Clark, *op. cit.*, p. 133. By permission of The Macmillan Company, publishers. The factual information supplied in the following paragraphs is taken from this source.

have been exceeded by the total trade to a considerable extent. However, the cost of the acquisition and maintenance of the colonial empire by far exceeds the direct expenditures. The cost of war and war preparation are chargeable to the colonies insofar as wars and armaments were necessary prerequisites of their acquisition and maintenance.

On the other hand, it must be remembered that trade does not follow the flag. As Josiah Tucker put it, "trade will always follow cheapness and not conquest." [16] The relative importance of the trade which can be absorbed by colonies has been referred to as surprisingly small. Between 1894 and 1932, Italy's trade with her colonies amounted to less than one percent of her total foreign trade. During the period from 1894 to 1913 Germany's trade with her colonies was less than four tenths of one percent of her total foreign trade. In 1912 and 1913 German exports to German colonies contributed 37 percent of the imports of the colonies but absorbed only six tenths of one percent of all German exports.[17] Japan's record is more impressive. From 1894 to 1934 she did 15.4 percent of her total foreign trade with her colonies. Similar figures apply to France. Britain's business with her dominions and colonies amounted to 31 percent of her total foreign trade from 1894 to 1933. Since this figure includes the various non-colonial components of the British Empire it cannot well be compared with the figures for the other countries.

With reference to those countries whose trade with dominions and colonies absorbed a considerable percentage of their total foreign trade, estimates are at hand showing that their benefits have likewise been wiped out by the cost of acquiring and maintaining dominions and possessions. The Japanese taxpayer directly and indirectly contributed for the acquisition and maintenance of the colonies an amount which is equal to one-third of all colonial trade. French taxpayers have borne a burden of direct and indirect colonial expenses amounting to 15 percent of the value of the colonial trade. In the case of Britain the balance is somewhat more favorable. Between 1894 and 1933, British business with dominions and colonies amounted to

[16] *A Selection from His Economic and Political Writings* (New York, Columbia University Press, 1931), p. 295.
[17] Angell, *op. cit.*

£18,000,000,000. The costs of maintaining the overseas empire during this period have been roughly estimated as £1,300,000,000. In balance, a profit of about 7 percent on the colonial trade would have been required to offset the cost of maintaining the colonial empire. However, if this profit has been made, it has accrued to other persons than the taxpayers, or, if this seems too sweeping a statement, the incidence of taxation was distributed in a different manner than were profits from colonial trade. It is of course uncertain whether a profit rate of 7 percent has actually materialized.[18]

In view of these figures, the following statement is a satisfactory summary of the situation: "Considering the record of how expensive getting and keeping the colonies has been, in relation to the trade with them, it is difficult to understand why people generally have come so firmly to believe that possession of colonies yields a net trade profit to the country as a whole. Profits, huge profits, have been made by a relatively few big traders, bankers, and armament makers, unquestionably. But the share of the common people has been more taxes, more misery, and less security." [19]

It must also be considered that territorial expansion, if it enlarges the market area of the conqueror, also enlarges that of the conquered territory. Examples of the consequences of this fact, often found undesirable by the businessmen of the conquering country, have been referred to above, p. 12.

Metropolitan countries are much more important customers than the colonies with their backward population and low standard of living. Before the outbreak of the present war Germany's greatest export markets were in the very countries with which she started fighting. "The Reich sold 69 percent of her exports in Europe . . . and 53 percent of her total export trade was with the very nations against which she launched her offensive." [20] Warfare dangerously jeopardizes the purchasing power of metropolitan countries. A peaceful policy directed towards the liberation of international trade from the impediments which have grown so strong in recent years is

[18] Clark, *op. cit.*

[19] *Ibid.*, p. 141. By permission of The Macmillan Company, publishers.

[20] Address of Franklin Johnston, editor of *The American Exporter*, before the Kiwanis Club, New York City, July 23, 1941.

much more efficient in enlarging markets than the forcing of goods upon the impoverished inhabitants of conquered territories.

With reference to Germany, it cannot be admitted that this country was in a situation even approaching an emergency with regard to her supply of means of payment for her imports. "Germany carries on an export trade sufficient to equip her with large quantities of foreign exchange. She would have no difficulty in purchasing all the colonial raw materials that her peoples want to consume, if she were ready to use part of her foreign exchange resources for that purpose. She has in fact bought immense quantities of those colonial materials, such as copper and bauxite, which are useful for war. It is her very heavy buying of all commodities which serve this purpose, iron, manganese, nickel, and the like, that constitutes her sole difficulty in buying other materials from colonies or elsewhere." [21]

*The quest for investment outlets.*—The investment of capital across national boundaries has been a source of war on several occasions. Capitalists in metropolitan countries have been in search for investment opportunities and often found them in foreign territories. This has given rise to clashes of rival powers which competed for the investment, and has induced lending countries to infringe upon the territorial sovereignty of the countries where profitable investment outlets were believed to exist. There are thus three possible causes of warfare in quest for investment outlets. (1) The war may be waged against the country offering investment opportunities in order to force the investment upon it. (2) The war may be fought against a rival power which might utilize the investment opportunity. (3) It may be waged with the view of enforcing payment of interest or principal, once the investment has been made.

The quest for investment outlets has been of considerably greater importance in the past when colonial and backward territories did actually offer great opportunities for profits from investments. As has been set forth above, the price situation on most of the markets for colonial products had in recent years become too unfavorable to attract much new investment. However, there can be little doubt that there will still be many investment opportunities in colonial and

[21] Henderson, *op. cit.*, p. 24.

backward countries if and when the standard of living in these countries and their purchasing power is improved by means of industrialization.

Experience during the past indicates that investors often have fared better when they invested their money in territories under the jurisdiction of their home country than in foreign territories. The plight of the holders of foreign bonds in the United States is a case in point. With reference to Great Britain Mr. Henderson, who otherwise regards the rationality of economic motives for war with the greatest scepticism, has the following to say: "The British investor was unwise in his indifference to the question of sovereignty. British investments in foreign countries compare badly today with investments in the overseas Empire. Mr. Ralph Assheton, M.P., in a letter appearing in the *Times* on 22 June 1939, has called attention to the fact that the present market valuation of foreign stocks, bonds, and railway securities (excluding those of the United States) appearing in the Stock Exchange list is less than one-fifth of their nominal value; while in the case of the government stocks and railway securities of the Dominions and Colonies, the proportion is nearly 90 percent. This comparison relates mainly to fixed-interest investments. The contrast would be much less marked in the case of investments in commercial undertakings, where indeed fair comparison is rendered difficult by the diverse fortunes of the different types of enterprise concerned. But many developments in recent years suggest that, other things being equal, the British investor is likely to do better, even in this field, if he invests under the British flag. Under fair-weather conditions the difference may be negligible. But when things go badly in a debtor country, when its economic life is impoverished and its governmental finances are deranged, the foreign bondholder and the foreign-controlled company are apt to become targets for adverse discrimination. If only by safeguarding against this danger, the control exercised by the British government over the colonial empire has been of great benefit to British investors." [22]

However, most authorities arrive at the conclusion that the gains which private investors have derived from the absorption of terri-

[22] *Ibid.*, pp. 12–13.

tories where investments can be or have been made are offset by the social cost of war preparation and warfare if recourse has been taken to these means. With respect to warfare designed to facilitate the repayment of investments, the benefits derived from repayment are out of all proportion to the cost of war, especially if there is unemployment in the investor country.

The fact that wars have been fought in order to secure and maintain foreign investments has given rise to the theory of imperialism. Imperialism is a policy designed to expand the territorial sovereignty of the imperial power. The exponents of the theory of imperialism presume that an economic society of capitalistic structure is unable to create a domestic market sufficiently large to dispose of the domestic production. In other words, in a society where there is private property in the means of production, credit, and production for exchange, there is said to exist a chronic state of overproduction because a large part of the population lacks sufficient purchasing power to acquire the products of their industry. Thus there is said to be a constant tendency towards expansion of the market in order to dispose of the surplus products. This tendency is said to have expressed itself in the export of finished products in earlier years and in that of capital in the more recent past.

The doctrine of imperialism was first advanced by the followers of Karl Marx and has been modified by J. A. Hobson, the British economist, in subsequent years. The two versions differ in important respects. According to Marx, the workers are unable to buy the products of their labor with the wages which they receive since wages fall short of the value of the product of labor by the so-called surplus-value. The latter is appropriated by the capitalist who, in order to realize it, is compelled to find ever-expanding markets beyond the territorial limits of the capitalist system. While Marxism thus regards imperialism as a necessary element of the capitalistic system, Mr. Hobson and his followers are inclined to lay greater stress upon certain defects of our economic order which are no essential elements of it and can be corrected without a change of the system itself. In Mr. Hobson's analysis the unequal distribution of incomes in modern societies is the cardinal evil. Since so large a share of the national in-

come accrues to a small number of people, too large a proportion of the national income is saved and too small a proportion spent on consumers goods. Unless wages are increased and the national income more equally distributed, consumers' purchasing power falls short of production and productive capacity. This leads to the quest for additional markets to dispose of "surplus" capital and surplus goods.[23]

Criticism of the doctrine of imperialism in the Marxian version must turn against the labor theory of value and the concept of surplus-value. Both are now generally regarded as fallacious. A more detailed critique is beyond the limits of the present book.[24] Unequal distribution of income, the central point of Mr. Hobson's analysis, has come to be regarded as the main, or contributing, cause of deficient purchasing power and unemployment by numerous authorities.[25] It is well to remember, however, that "private investments seeking purely business advantage have rarely of themselves brought great powers into serious political clashes," and that "foreign investments have been considerably more useful as an aid and protection to navies than navies have been as an aid and protection to foreign investments." [26]

An original and stimulating theory of imperialism which goes beyond the limits of economic science proper has been developed by Professor Joseph Schumpeter.[27] Aggressive expansion not motivated by any concrete and real interest is interpreted by him as an atavism and relic of ancient attitudes and dispositions, not as a reflection of a specific economic organization such as capitalism. Thousands of years ago such attitudes and dispositions were called forth by environmental

[23] J. A. Hobson, *Imperialism*, third ed. (London, Allen and Unwin, 1938), pp. 88–89.

[24] See H. Neisser, *Some International Aspects of the Business Cycle* (Philadelphia, University of Pennsylvania Press, 1936), pp. 161ff.

[25] The Brookings Institution, *The Distribution of Income in Relation to Economic Progress* (Washington, 1934ff.), and the writings of Mr. Keynes and his followers.

[26] E. Staley, *War and the Private Investor* (New York, Doubleday, Doran and Company, 1935), pp. 100, 360.

[27] *Zur Soziologie der Imperialismen* (Tübingen, J. C. B. Mohr, 1919). This is a special reprint from the *Archiv für Sozialwissenschaft und Sozialpolitik*, Vol. 46, No. 1 and 2.

factors and situations which have long since ceased to exist but are survived by the products of their creation. Aggressive expansion not motivated by any real interest is thus one of the many examples of the old truth that the dead control the aims and beliefs of the living.[28] However, Schumpeter recognizes the fact that further explanation is required why imperialistic impulses are not just dormant dispositions but are operating frequently and intensively. This explanation he is inclined to find in the observation that feudal-aristocratic elements in society as well as businessmen and members of the military utilize them for their own ends, thereby fostering imperialism and war.

It should however be kept in mind that the "power-behind-the-throne" explanation of war has only a very limited field of application. The argument of its exponents runs about as follows: Since the state is an instrument of the rich and powerful, and since the same rich and powerful are eager to control raw materials and find new markets and investment outlets,

> they will use the machinery of the state, its military and naval strength, and will plunge the nation into war from the successful outcome of which they expect to gain an enlargement of their fortunes and an increase in economic power. The evidence to support such a contention is difficult, if not impossible, to obtain. That it may have been a contributing factor in a host of other factors is not out of the question, but that it would be the single or even the major initiating factor is most unlikely. Undoubtedly, there are capitalists who would like to obtain control over raw materials and markets and would not be averse to having the nation fight for them and turn them over to them. But in a capitalistic society not all capitalists want the same natural resources or the same markets, and it is unlikely that those who do not stand to benefit from such a "successful war" will be willing to pay the price of a war to obtain free gifts for their fellow-capitalists. Of course, they may not know that they, like the rest of the population, are being manipulated and maneuvred into a situation disastrous to everyone else but beneficial to a few who have the ear of the war lord and his counselors. It is also possible that most capitalists think that, if the war is successful in obtaining natural resources and markets for some, it may be of benefit to all capitalists, or that, if they do not benefit now, the next successful war will give them what they want, as the previous war benefited

[28] *Ibid.*, p. 76.

another group. All these questions are unanswerable on the basis of the available evidence.[29]

In recent times the doctrine of imperialism has been accepted among wide circles which do not seem to be aware of the intellectual origin of this theory and its setting within the history of economic thought. Moreover, the newly won adherents of the theory of imperialism are not aware of the fact that not all imperialisms are alike and that there is a world of difference between, say, liberal-capitalistic and fascist imperialism. Under fascism,

> the conquered people will deliver the fruits of their labor not simply for the benefit of profit-seekers, but to feed a vast military machine and to maintain a tolerable standard of living for the "master race." The natural resources of the conquered territories will be exploited by hordes of slaves. Since the military machine in the metropolitan country removes millions of men from production, millions of conquered natives must be imported to perform the most menial tasks in agriculture and industry. As Hitler told Rauschning, the fascists will not repeat the errors of private capitalists, "who misused industry in the service of progress." They will use it as an "instrument not of progress but of dominion. It requires to be used as a means of dominion." . . .
>
> Just as capitalistic imperialism was affected and modified by the liberal-democratic culture of the governing countries, so the new imperialism is determined not only by fundamental economic considerations but by the cultural pattern as well. Basic in the new system is the concept of a hierarchy of races—a concept totally absent from the liberal-democratic scheme. . . .
>
> Britain, aside from being a capitalistic country, has also been a democracy. This factor has played a far more impressive role in British imperial history than is generally realized. . . . In no other imperialist country has it been so easy to arouse public opinion and legislature against the deeds of colonial agents. . . .
>
> The fascist powers, if victorious, will give imperialism a new lease of life, and by all indications it will become an imperialism infinitely more brutal, more oppressive, than capitalist imperialism has been during the past century and a half.[30]

[29] M. Handman, "War, Economic Motives, and Economic Symbols," *American Journal of Sociology* 44: 638 (1939).

[30] Albert Viton, "Imperialism, Old and New," *The Nation* 152: 347–48 (March 22, 1941).

## Economic Interest in Warfare

Economic causes of war are also operating when there is no special interest in the objective of a war but in warfare as such. A war may be promoted by people who want to profiteer or divert popular attention from their machinations.[31] It is difficult to separate this case from another where economic interests do not promote war but are responsible for conditions making for war.

In this connection the unrestrained profit motive of the makers of munitions has aroused disapproval in many quarters, and has led to the sponsoring of parliamentary enquiries in Britain and in this country.[32] The makers of armaments

> wish to sell their goods. It need not be suggested that any among them are so callous to human suffering as to desire actual war for that end. But they certainly desire preparations for war. If they can persuade one government that another government is arming against it, they may obtain a lucrative order for ships or guns. The leading armament firms of different countries do not limit themselves to supplying the needs of their own governments, nor are they wholly independent of, or dissociated from one another. It is to the interest of all of them to promote war scares and international competition in armaments. If they can induce one government to buy from them some new instrument of war, this of itself affords them a powerful lever with which to induce other governments to do the same. They are not without influence in the press, and, through the press, on public opinion. It is not necessary to assume that the persuasion they exercise is corrupt, or that they deliberately disseminate false alarms. It is enough to know that they find a profit in stimulating the purchase of armaments; that, so far as they succeed, mutual suspicions and fears among governments are fostered; and that thus the explosive material, out of which the flame of war may burst, is piled higher.[33]

[31] *Therefore, my Harry,*
*Be it thy course to busy giddy minds*
*With foreign quarrels.*
SHAKESPEARE, *King Henry IV*, 2, 4, 5.

[32] As to the role of "international finance," see Miriam Beard, *A History of the Business Man* (New York, The Macmillan Company, 1938), pp. 708–709.

[33] A. C. Pigou, *The Political Economy of War*, revised ed. (New York, The Macmillan Company, 1940), pp. 25–26. By permission of The Macmillan Company, publishers.

It is especially the internationalism of the makers and dealers of munitions which has given rise to the worst suspicions. Before the World War of 1914–18, "the German heavy-industrialists had bought so extensively into French munitions-plants that they profited richly by every new French appropriation for armament against Germany." [34] In December, 1939, *Iron Age* reported from Copenhagen that, in spite of the war, France and Germany were exchanging iron and coal by way of Belgium. Though the report was denied, there is much likelihood that such trade was carried on.[35] According to a New York *Times* editorial, the ethical point involved therein is "subtle," and "the fact that such exchanges remain not wholly unlikely while the war continues is a commentary, not on human cupidity, but on the indivisibility, even in time of war, of the international economic system." [36]

## Economic Conditions Making for War, or, the Economics of Peace

In the preceding sections we have dealt with economic interests as factors accounting for aggressive warfare. Besides these cases, however, there exist economic conditions or situations which are conducive to war but for which nobody can be justly held responsible. The study of these conditions is of far-reaching implications since it reveals the principal disturbing factors with which public policies, domestic and foreign, must cope in order to create conditions favorable for a lasting peace. These conditions explain why nations are inclined to embark upon aggressive warfare and are backed therein by the bellicose spirit of their people, in spite of the fact that territorial gains from war do not result in economic improvement. The bellicose spirit must thus be produced either by misapprehensions concerning the effectiveness of war as an instrument to secure economic improvements or by the operation of other non-economic

[34] Beard, *op. cit.*, p. 709. See also pp. 211–13, 275, 292–94 for a wealth of historical detail. During the first World War Germany bought nickel in the United States from smelting plants supplied by Canada.

[35] The full story is revealed in Frank C. Hanighen's article "Selling to the Enemy," *Harper's Magazine*, March, 1940.

[36] December 27, 1939.

motives. Professor Schumpeter thus interprets aggressive expansion as atavism and relic of ancient attitudes and dispositions.

It is here that our present discussion starts. For it will be found that warlike dispositions as characterized by Schumpeter are stimulated by certain economic conditions. These conditions are unemployment and insecurity as they prevail in modern economic societies. Not only do unemployment and insecurity create situations where peoples are likely to turn to aggressive warfare. Unemployment and insecurity are also, at least in part, responsible for the decline in the strength of strictly economic motivation. If men were motivated exclusively by economic calculation they would not turn to aggressive warfare.

It has been said that our present age is characterized by "the end of economic man" in wide parts of the world.[37] By that is meant that economic gains as motivating forces of human activity have lost much of their strength and that they have been replaced by other incentives, values, whose materialization often entails a lowering of the standard of living. People in the fascist countries have for long preferred more guns instead of more butter. Is this preference based exclusively upon the belief that more guns now will help them to get more butter at a future date? There is no competent student of fascism who would present this as an exclusive interpretation of the change in motivation which has taken place.

The change in the motivating forces must be interpreted, at least in part, as the effect of economic maladjustments, especially of insecurity and unemployment. As Karl Mannheim has shown, insecurity fosters change in many strata of biological existence and upon all levels of historical development. Insecurity results in the dissolution of the existing order, which reverts to earlier patterns of social organization. Among the symptoms of pre-war insecurity, unemployment was outstanding.

> The catastrophe lies not merely in the disappearance of external opportunities for work but also in the fact that [man's] elaborate emotional system, intricately connected as it is with the smooth work-

[37] See the book of the same title by P. Drucker (New York, John Day Company, 1939).

ing of social institutions, now loses its object-fixation. The petty aims to which almost all his strivings are directed suddenly disappear, and, not merely does he now lack a place of work, a daily task, and an opportunity for using the integrated labor attitudes formed through long training, but his habitual desires and impulses remain ungratified. Even if the immediate needs of life are satisfied, by means of unemployment relief, the whole life-organization and the family hopes and expectations are annihilated. One has only to remember how much libidinous energy is normally invested, in a capitalistic society, in social ambitions to realize what this means.[38]

This stage of "unorganized insecurity," as Mannheim calls it, is characterized by the decay of the belief in institutions, mores, traditions and historically established prestige. Since man cannot find gratification for his strivings through work and social acknowledgement, he tends to exist on substitute goals and is satisfied with gestures and symbols.

> As soon as it is possible to change the original level of aspiration and to induce the people to strive for symbolic goals as if they were primary goals, so that instead of butter they desire national prestige, they will cease to feel the latter as symbols and consider them rather as real gratifications.
>
> The new goals make the people
>
> act against the system of established relationships, and in acting against it they not only try to wreck this network of relationships, but seek to call in question the former definition of the situation, devaluating the meaning and significance of the original level of aspirations. Thus not only does the new symbol gain in significance but its reality-prestige is raised; striving for the honor and glory of the nation seems to be every bit as real a business as striving for economic gain.[39]

In the further development, the stage of unorganized insecurity changes into one of "organized insecurity," where the new values and attitudes are enforced by the group. This society retains stability as long as the new set of values and of symbolic strivings has more reality than the older motivations with their desire for economic gain and higher standards of living.

[38] K. Mannheim, *Man and Society in an Age of Reconstruction*, pp. 128–29.
[39] *Ibid.*, pp. 132–33.

Mannheim's brilliant interpretation of the change in economic motivation, plausible as it is, still has certain weaknesses. For example, how can it be reconciled with the fact that the military state which has established substitute goals, such as "dangerous living" and nationalistic glory, in place of economic security and employment, has at the same time and by this very policy created employment and absorbed the unemployed by turning the whole nation into one vast munitions plant? In this connection it is of no relevance that the newly employed did not produce goods and services that raised the standard of living. The salient point is that they again held a position offering them an outlet for the traditional social and psychological ambitions. Perhaps it is this factor which makes the new values and symbolic strivings appear as mere shadows and restores reality to the older motivations with their desire for economic gain and higher standards of living. Perhaps it was in this dilemma that the dictators took refuge in war.

## Summary

Analysis of the economic causes of war has shown that economic motives which turn people to aggressive warfare are neither rational nor final. If it is true that economic motives are not final, social therapy in the international sphere must either seek to transform and sublimate the final ends now being pursued by war so that war loses the functional role it has in achieving such objectives as prestige and power. Or it must strive for arrangements in the international sphere which are less pernicious than aggressive warfare and apt to secure the materialization of these goals within universally tolerable limits.

It is only under conditions of unemployment and protectionism that war can at all be conceived as an instrument of economic improvement. Unemployment and protectionism have also created situations of economic distress which enable demagogues to stir up bellicose impulses and make aggressive warfare appear as a desirable social ideal and instrument of economic betterment. Unemployment and protectionism are evils that feed on themselves and stimulate one another. A realistic peace policy, which also is the only policy leading towards economic improvement, will aim at averting these evils by

providing genuine employment opportunities and by removing the obstacles which hamper the flow of international trade. Some policies which provide employment in the short run are apt further to impede international trade. Such "beggar-my-neighbour remedies for unemployment," as they have been called, do not secure enduring employment opportunities and can be maintained only if the standard of living is lowered. In the international sphere, employment policies which adversely affect international trade foster conditions making for war.

It would, however, be erroneous to limit the objective of a successful economic peace policy to the establishment of free trade among nations. Unfortunately, many proposals for "Federal Union" and the like do not go beyond this point. Free markets do not make free men. There is necessary in addition a positive policy to cope with unemployment such as has been formulated in the economic discussion of recent years.[40] As Alvin Hansen has pointed out:

> It is a tenable thesis that the great depression provided the Nazis with their best weapon in their successful struggle for power. And it is an indisputable fact that the presence in 1933 of vast idle resources made it relatively easy, given the government control of production and consumption, to rouse a great nation, still smarting under a military defeat and conscious of its former military strength, to a prodigious rearmament effort. Yet, despite the role of the great depression as a major factor causing the current world disaster, there are still people who talk about peace aims and a new international order leaving out of account all discussion of the problems of post-war full employment.[41]

[40] Alvin H. Hansen, *Fiscal Policies and Business Cycles* (New York, W. W. Norton and Company, 1941); James W. Angell, *Investment and Business Cycles* (New York and London, McGraw-Hill Book Company, 1941); John Philip Wernette, *The Control of Business Cycles* (New York, Farrar and Rinehart, 1940).

[41] "Income, Consumption, and National Defense," *Yale Review*, Vol. 31, No. 1: 119–20 (1941). Reprinted by permission of the editors. Copyright Yale University Press.

# CHAPTER II

# THE NATURE OF TOTAL WAR

Economic means and weapons of warfare have been in existence throughout all history but have at no time been nearly as important as under modern conditions of total war. The full understanding of this concept will be facilitated by a classification of war types.

## Classification of Wars

Wars can be classified by their sponsors and initiators, their objectives, limitations, mechanisms and techniques, and moral qualifications.

*Sponsorship and initiation.*—The sponsors and initiators of war can be found among princes, among groups of the population, or the whole populace may sponsor and initiate warfare. Under modern conditions only the last-named type of sponsorship counts. War has ceased to be the business of the noblemen and princes as it was until the time of the French Revolution. The popular army, which came to the fore during the last decades of the eighteenth century, made war the business of the whole people. At the present time no nation can wage a war which is not endorsed by the large majority of the people, since it is not only the military proper and the fighting forces which have to carry it on. Warfare has become the business of a "society in arms," and the emotional element required for the stimulation of mass action operates with greater force than in the past when war was propagated by princes and noblemen.

*Objectives.*—A great variety of objectives of war can be distinguished but many classifications of this type have little meaning for purposes other than those of the historian. Others again are of interest to the strategist and military tactician without having a wider social significance. Some writers distinguish between wars for gain or for prestige, for ideological or material change, wars of liberation or predatory wars, aggressive or defensive wars, revolutionary or re-

storative wars. Guglielmo Ferrero, the eminent historian, has recently put forward a new classification which seems very fruitful and goes to the roots of modern developments. Ferrero distinguishes between wars which are waged on account of some definite political question and wars "justified retrospectively." The wars of the eighteenth century were mostly of the former type; each war was judged as a complete whole and the sacrifice involved was held in proportion to the importance of the issue involved. When the sacrifice became too great, peace was made. These were the wars of the princes; they lacked the impelling emotions inherent in modern warfare waged by the whole society. Wars of the second type lack a definite aim to which the war effort can be in any proportion. They are "justified retrospectively." "The extent of the sacrifices already made . . . had to be justified by the greatness of the aim in view." [1] The popular wars of the French Revolution and the Napoleonic wars are cases in point. Napoleon never succeeded in concluding a final peace "because he could not fix a definite, stable goal for his wars and limit the efforts and sacrifices required by keeping them proportionate to the importance of the ends in view, as the statesmen of the eighteenth century had done." [2] During the later course of the nineteenth century wars again became similar to those of the eighteenth century. Definite goals were set and the effort was proportionate to the issue. The first World War was again a war which started with an initial disproportion between issue and effort, and, under the influence of impelling popular emotion, "it very quickly became a war with changing and ever wider aims." [3] Wars without definite goals tend to become wars of annihilation ending through exhaustion or revolution if they are continued long enough under increasingly greater sacrifices of the belligerents.

*Limitations.*—The war strategy may be restricted or not. In the latter case occasionally the term "extended strategy" is used. In restricted warfare the limitations may be set up by ethical norms, cus-

[1] "Forms of War and International Anarchy," in *The World Crisis*. By the Professors of the Graduate Institute of International Studies, Geneva (London and New York, Longmans, Green and Co., 1938), p. 88.

[2] *Ibid.*, p. 90.

[3] *Ibid.*, p. 92.

tom and tradition, codes of honor or law. The restrictions most often represented "alike a moral principle and a practical necessity. . . . In the eighteenth century war became limited and circumscribed by a system of precise rules. It was definitely regarded as a kind of single combat between the two armies, the civil population being merely spectators. . . . In addition to this code of honor, there were material limitations as regards men and money. . . . The object of warfare was the execution of skilful manoeuvres and not the annihilation of the adversary. . . . Restricted by small numbers, poverty, and the laws of honor, war became a kind of game between sovereigns." [4] A victory without battle was regarded as the greatest achievement.

This type of warfare passed into oblivion with the French Revolution when popular warfare ushered in an era invalidating the old codes of the military and when unprecedented technological progress and population growth relieved the belligerents from the practical necessity of keeping the combat within narrow limits. Thorstein Veblen has described the impact upon nationalistic ambitions of "the Liberal, Rationalistic, Humanitarian, or Individualistic departure":

In point of time, the decay of this amiable conceit of laissez-faire in national policy coincides with the period of great advance in the technology of transport and communication in the nineteenth century. Perhaps, on a larger outlook, it should rather be said that the run of national ambitions and animosities had, in the eighteenth and nineteenth centuries, suffered a degree of decay through the diffusion of this sentimental predilection for Natural Liberty, and that this decline of the manlier aspirations was then arrested and corrected by help of these improvements in the technological situation; which enabled a closer and more coercive control to be exercised over larger areas, and at the same time enabled a more massive aggregate of warlike force to strike more effectively at a greater distance.[5]

Such codes and limitations of war as have retained their hold over the belligerents lack the forceful sanction inherent in the previously

[4] From Guglielmo Ferrero, *Peace and War*, transl. by B. Pritchard (New York, The Macmillan Company, 1933), pp. 4ff. By permission of The Macmillan Company, publishers.

[5] *What Veblen Taught*, edited by Wesley C. Mitchell (New York, Viking Press, 1936), p. 488. Copyright 1919, 1921, 1923 by B. W. Huebsch, Inc. By permission of The Viking Press, Inc., New York.

existing technology, the old codes of military honor, and a law of nations based upon the law of nature. The new positive law of nations with its treaty-basis has been more honored in the breach than in the observance. This applies especially to the law of war, which emerged from the first World War in a state of chaotic confusion and was not improved during the subsequent peaceful interval. Wars are now started without formal declaration, human settlements are bombed indiscriminately, and the law of war is observed only if expediency calls for such observance. The old codes of military honor whose remnants were still respected during the first World War, have decayed together with the military caste which they protected. Sovereigns, general staffs and generals have become exposed to all risks of popular warfare. War has become absolute in that it is only restricted by considerations of expediency and no longer by rules of a higher order.

*Mechanisms and techniques.*—Mechanisms and techniques of warfare can be classified in accordance with a great variety of points of view. For the purpose of the present discussion it is sufficient to concentrate upon the type of fighting forces and weapons. Three different stages can be distinguished.[6]

1. Under the feudal system wars were carried on by small, impermanent bodies of individual warriors. During the earlier feudal period these bodies were composed of knights and serfs who were linked to their overlords by the bonds of feudal tenure. The noblemen themselves took care of their equipment and supply. Only little money was required for this type of warfare. Money became a more important implement when mercenary troops began to displace the feudal knights during the eleventh century. The organization of these troops was entrusted to private agents who sold their men to the highest bidder.

2. It was not until the seventeenth century that the state ceased to rely upon private agents. The small, impermanent bodies of mercenaries were replaced by standing armies of the new nations. Among the soldiery, the trend towards professionalism had been fostered by

[6] A. Vagts, *A History of Militarism* (New York, W. W. Norton and Company, 1937), pp. 441–43.

technological advances in the development of the firearms requiring special knowledge and the application of specialized techniques. The money used for warfare was no longer handed over to private organizers but was directly disbursed by the state for the maintenance and equipment of the standing army. The first standing army of significance was created in England under Charles II in 1660.

3. During the Napoleonic wars, concluded in 1815, "these limited troops led by exclusive commanders broke down, yielding place to mass armies animated by nationalistic fervor." France was the first power to introduce the popular army. A hundred years later, during the first World War, the perfectly organized modern state produced the "society-in-arms," "regimented down to the very infants, fused by consciousness of some supra-natural 'race,' 'soil,' or 'history,' economically and mentally mobilized, forever standing in readiness for the 'total war.'" [7] This war is fought on land, at sea and in the air, and its weapons are taken from the arsenal of technology, psychology and economics, exposing the whole population to the terrors of the war which it itself carries on.

The close inter-relationship between changing technologies and types of warfare has often been pointed out. Modern technology "not only accounts for a good part of the increased physical suffering and loss of life in modern war but it shares no small part of the responsibility for the terrific economic, social, and political readjustments that modern war brings in its wake." [8] Professor Sorokin has illustrated the growing intensity of warfare by statistical calculations relating to military strength and casualties during the period from 1101 to 1925. The calculations

> show a steady but uneven growth of the size of the army and the number of the casualties, from the twelfth to the eighteenth centuries inclusive, a notable decrease in the nineteenth century, and an unprecedented flare-up in the first quarter of the twentieth century. The casualty figure for that quarter exceeds the total casualty for the

[7] *Ibid.*, p. 441.

[8] See *Hearings* before the Temporary National Economic Committee, 76th Cong., 3rd Sess., Part 30 (Washington, 1940), pp. 16261–62, where the subject is further discussed; Lewis Mumford, *Technics and Civilization* (New York, Harcourt Brace and Company, 1934), pp. 81ff.

preceding centuries taken together. . . . All in all, casualty rates increased faster than the strength of the army.[9]

Professor Sorokin then goes on to appraise these findings in the light of population growth:

From the seventeenth to the twentieth centuries, so far as the army's strength per population is concerned, the greatest burden of war was in the seventeenth century, then the eighteenth, and the lightest was in the nineteenth century. The twentieth century, in its one quarter, did not exceed the burden of the seventeenth and the eighteenth centuries, but exceeded the nineteenth century.

With respect to casualties per population, the figures

tell definitely and unequivocably that the curse or privilege to be the most devastating or most bloody war century belongs to the twentieth; in one quarter century it imposed upon the population a "blood tribute" far greater than that imposed by any of the whole centuries compared. The next place belongs to the seventeenth, and then comes the eighteenth century; the nineteenth century appears to be the least bloody of all these centuries concerned [*i.e.*, of the seventeenth to twentieth centuries].[10]

*Moral qualifications.*—Moral qualifications can be applied to a concrete instance of warfare regarded as just or unjust, or to warfare in general. Vitoria and other great internationalists of the medieval law of nations had taught the world to distinguish between just and unjust wars. Positivism caused these concepts to fall into oblivion, and modern immoralists like Nietzsche have only contempt for them: "Ye say, a good cause will hallow even war? I say unto you a good war halloweth every cause." [11]

Warfare in general may be regarded as an undesirable, abnormal and temporary state of affairs, or as desirable, normal and permanent. The latter view was held by Adam Müller, the spiritual father of national-socialist ideology, and is echoed in many statements of Hitler

[9] P. A. Sorokin, *Social and Cultural Dynamics*, Vol. 3 (New York, American Book Company, 1937), pp. 336–37. By permission of the publishers.

[10] *Ibid.*, pp. 341–42.

[11] F. Nietzsche, *Thus Spake Zarathustra*, transl. by F. Tille (London, Fisher-Unwin, 1908), p. 58.

and Mussolini. Adam Müller believed that "the state of war is as natural as the state of peace; and the idea, the courage, of war must permeate all families, all laws, and all institutions of all peacetime." [12] According to Hitler, "one may well believe that this world will still be subject to the fiercest fights for the existence of mankind. In the end, only the urge for self-preservation will eternally succeed. Under its pressure so-called 'humanity,' as the expression of a mixture of stupidity, cowardice and an imaginary superior intelligence, will melt like snow under the March sun. Mankind has grown strong in eternal struggles and it will only perish through eternal peace." [13] Mussolini states: "Fascism does not believe in the possibility, or the utility, of perpetual peace. . . . War alone brings to their maximum tension all human energies and stamps the seal of nobility on those peoples which have the virtue to face it. . . . We are becoming, and shall become so increasingly because this is our desire, a military nation; a militaristic nation, I will add. . . ." [14]

*Total war defined.*—Upon the basis of the fore-going discussion, total war can be defined as an armed conflict between sovereign states, sponsored and waged by a society in arms. Total war has no specific objective. Its aim is "the utter destruction of the vanquished nation and its final and complete disappearance from the stage of history." [15] Total war is unrestricted in its means, and is fought on land, at sea and in the air with weapons supplied by modern technology, psychology and economics. The whole population is exposed to its terrors, and the line of demarcation which used to divide war and peace, belligerents and non-belligerents, is fading away.

The doctrine of total war has its roots in Germany and Italy. The concepts of total war which have been elaborated in both countries are different but supplement one another. There is much probability that the phrase "total war" originated in the bellicose mind of the German World War general Erich Ludendorff, an early protagonist

[12] *Elemente der Staatskunst* (1809); quoted in Rolf Wagenführ, ed., *Kriegswirtschaft* (Berlin, Junker und Dünnhaupt, 1935), p. 11.

[13] *Mein Kampf*, complete edition (New York, Reynal and Hitchcock, 1940), p. 175. Copyright Houghton Mifflin Company.

[14] "Fascism," in *Enciclopedia Italiana* (Milan, Treves, Trecanni, Tumminelli, 1932), Vol. 14, p. 849[a].

[15] *Deutsche Wehr*, supplement, *Die Deutsche Volkskraft*, June 13, 1935.

of the Nazi movement. In his World War memoirs he made use of this concept and later on elaborated upon it in a publication entitled *Total War*.[16] Total war "directly touches the life and soul of every single member of the belligerent nations." [17] It is the result of the introduction of universal service, of population growth and the use of new weapons which carry the war deep into the enemy territory, and expose the civilian population to leaflet, radio, bomb, deprivation and starvation. In recent German literature the distinction is made between three forms and means of total warfare, "military, economic and spiritual, including under the latter head all the varied devices of diplomacy and propaganda." [18]

Besides the traditional use of the military proper, total war thus embraces two new weapons: "spiritual," or psychological, and economic warfare. Psychological warfare is defined as "the planned preparation and execution of operations aiming at strengthening or destroying the spiritual resistance of the belligerents by means of moral powers," as the strengthening of morale at home, its destruction in the enemy country, and the influence upon public opinion in the world in favor of the home country.[19] Like the economic weapon, the psychological one has developed a scientific discipline in its own right. In spite of the dramatic element underlying psychological warfare, this aspect of total war had not found much attention in democratic countries until the midsummer of 1940, when the defeat of France impressed upon the world the wider ramifications of totalitarian warfare.

Some of the elements of psychological warfare which have played a decisive role in the defection of France have been analyzed in masterly fashion by Professor Yves Simon.[20] As he points out,

[16] *The Nation at War*. Transl. by A. S. Rappoport (London, Hutchinson and Company, 1936).

[17] *Ibid.*, p. 15.

[18] Colonel H. Foertsch, *The Art of Modern Warfare*, transl. by T. W. Knauth (New York, Oskar Piest, 1940), p. 9.

[19] Lieutenant-Colonel Dr. Blau, "Die geistige Kriegführung im Rahmen der Gesamtkriegführung," *Jahrbuch für Wehrpolitik und Wehrwissenschaften*, 1939, pp. 94ff. (Hamburg, Hanseatische Verlagsanstalt, 1939).

[20] "The European Crisis and the Downfall of the French Republic," *The Review of Politics* 3: 32–64 (Notre Dame, The University Press, 1941). By permission of the editor, Waldemar Gurian.

the totalitarian state becomes the head of an international community which divides its followers in other countries from their own national allegiance.

He then goes on to expose the respective roles of the Third International and of fascism. "Because the Third International was openly an instrument of the Soviet government, no patriot, outside Russia, could ever think of joining it. No member of the International, outside Russia, could be mistaken for a patriot. This is apparently the decisive point: if a country was betrayed in favor of the Soviet expansion by some of its citizens, those citizens, in most cases at least, had the soul of traitors and the reputation of bad citizens. Their case was plain and comparatively easy to deal with. . . . But Hitler knew [how to use a smoke-screen]. When Hitler came into power, he was immediately held out to the world as the liberator of Germany from communism and atheism. Communism had been crushed, indeed, in Germany, but fourteen years earlier and by a socialist government; during the Weimar era, the position of the Catholic Church in Germany had been more favorable than at any time since the Reformation. But who cared for the truth? . . .

In all likelihood, the French would not remain indefinitely blind to a growing menace: their will to resist had to be broken down, if Hitler was to realize his plans. This was a hard task, and Hitler could not possibly achieve it without using some friends as go-betweens. A Frenchman who claimed to be a patriot was not permitted, then, to declare himself in favor of Hitler: true patriots would have silenced him. But nothing prevented him from praising Mussolini and other Fascist leaders. Nothing prevented him from arousing blinding hatreds against the persons and the things that were daily attacked with a ruthless fury by the National-Socialist Party: first of all, the Jews, then the Socialists, the League of Nations, the democratic institutions, the British, the Czechs, Benes, Eden and President Roosevelt. The psychological trick was exceedingly simple: those who are the friends of our friends are our friends, those who are the enemies of our enemies are our friends. A Frenchman who considered as his best friends the Fascist allies of Hitler could not help being irresolute in his will to oppose Hitler. A Frenchman whose greatest hatred was that of the Jews could not help being irresolute in his will to oppose the great chief of the anti-Semitic world campaign.

Now, and this is the decisive point, who were those Frenchmen who were the most inclined to sympathize with the friends of Hitler and to favor hating those whom Hitler hated above all? Precisely men of the Right Wing, men of the Nationalist Party, men who claimed to be, and were believed to be, the representatives *par excellence* of French patriotism, men whose historical mission was to be the guardians of the City. . . . The National Socialist State proved able to do what the Soviets could not afford to do. It could win the more or less unconscious support of reputedly patriotic people; if not their support, their sympathy; if not their sympathy, their irresolution. Owing to this irresolution, this sympathy, this support, the Fifth Column, composed of conscious traitors and paid agents, had its own way. And this is how the Trojan Horse, welcomed as a protecting god, opened its sides for the conqueror within the sleeping city. . . .

The causes which have effected the suspension of French liberties are still at work all over the world." [21]

*Integral war.*—In Italian military literature references are frequently found to the concept of "integral war." This term was coined by General Giulio Douhet (1869–1930), a fascinating and prolific writer on military affairs, who recognized the great significance of aviation at an early date. As compared with Ludendorff's concept of total war which emphasizes the totality of the war effort in the social sphere and the application of economic and psychological weapons, General Douhet's concept is of a more technical and strictly military nature. He conceived of integral war as a war with unity of action on the part of army, navy and air force, extending beyond a mere coöperation between the three branches.[22] In this connection he coined the celebrated formula, "*resistere sulla superficie, per far massa nell'aria*," which summarizes his strategic theory of modern war: it is necessary to defeat the enemy in the air and to resist him on land and at sea. As early as 1921 General Douhet pointed out the need for an independent air force, separate from the auxiliary air forces of army and navy. In his thinking airplanes were not regarded as mere

[21] *Ibid.*, pp. 33, 61–64.

[22] Giulio Douhet, "Il problema della guerra integrale," *Rivista Aeronautica*, August, 1928. This article is reprinted in a collection of various articles by Douhet, published under the title *La guerra integrale* (Rome, Campitelli, 1936), pp. 233–56. See especially p. 250.

accessories of army and navy with the function of prolonging and supporting the action of the latter, but as the decisive elements of future warfare. They would strike at the vital points of the enemy, destroy his industrial power and scatter his morale. This function of the air force he regarded as far more important than the delivery of air battles. While the army can fight only against an army, and the navy against a navy, the air force can fight against army, navy and air force of the enemy. Defense preparations must thus secure an equilibrium of one's own and the enemy's forces on land and at sea where a defensive effort suffices. It is the air force which brings about defeat and thus must be superior.

*Evolution of war economics in Germany*.—The intensive occupation with the economic aspects of war preparation and warfare which started in Germany with the advent of the Hitler regime has resulted in a stupendous volume of literary output in the course of the years. Research institutes and university chairs for the investigation and propagation of war economics were established by the authorities, who also assumed financial responsibility for the printing and publishing of numerous monographs and treatises on war economics.

Historically, the new discipline had evolved as economics of war proper, to be distinguished from economics of peace. The abandonment of this disjunction is characteristic of the development in nazi Germany. The economics of war and peace assumed uniform character in the new *Wehrwirtschaft*, a preparedness economy of both war and peace. *Wehrwirtschaft* can best be translated as "economics of the military state," or "economics of the garrison state." It is "the dynamic principle which embraces peace and war economics, and stimulates their efficiency for the purpose of armed defense." [23] Thus total war erases the line of demarcation separating war from peace, and calls forth the economy of the permanent military state. "A totalitarian policy must . . . elaborate in peace-time plans for the necessary preparations required for the vital struggle of the nation at war." [24] The same holds good for the other weapon of total

[23] Lieutenant-Colonel Warlimont, "Volk und Wehrwirtschaft," *Jahrbuch der Deutschen Gesellschaft für Wehrpolitik und Wehrwissenschaften*, 1936 (Hamburg, Hanseatische Verlagsanstalt, 1936), p. 27.

[24] Ludendorff, *op. cit.*, p. 23.

war, psychological warfare: "On this front there is no truce; here war never ends. It was raging before the first gun spoke; it will still be raging when the diplomats of Europe gather together under the chandeliers or by some lakeside to dictate or negotiate a peace. Peace offensives are just offensives on the battlefront of the mind and war scares are just war." [25]

The identity of the economy of peace and of war has been most forcibly proclaimed by Mussolini. He states that "the distinction between a war and peace economy is simply absurd. There is no such thing as an economy of peace-time and an economy of war-time. There is only a war economy because, historically, on the basis of the number of years of war, it is proved that the state of armed warfare is the normal state of the peoples, at least of those living on the European continent, and because even in the years of so-called peace other forms of warfare are practised which, in turn, prepare for armed warfare." The economy is, therefore, at all times dominated by the fact and imminent fatality of war.[26]

This unlimited character of modern war preparations was clearly recognized by Edwin Cannan during the dark days of the World War of 1914–18: "The ideal of the military state is no longer a nation which can fly to arms at short notice and for the rest of the time is engaged in the arts of peace, satisfying peaceful desires, but a state in which the whole life of the people and even the propagation of new lives is made *at all times* subservient to the one great aim of defeating the enemy, or some possible enemy, if there happens to be none visible at the moment. Fortunately no people will long submit to have any such ideal imposed on them, and any government which attempts to impose it is doomed." [27]

## The Economics of the Military State

The nazi dictatorship has made war preparation and warfare the simple and well-defined objective of its planned economy as early as

[25] E. Taylor, *The Strategy of Terror* (Boston, Houghton Mifflin Company, 1940), p. 1.

[26] Address before the Supreme Committee for Self-Sufficiency, November 18, 1939. London *Times*, November 20, 1939.

[27] *An Economist's Protest* (New York, Adelphi Company, 1928), pp. 76–77.

1933. The great depression was only an occasion for this policy of centralized planning which itself was motivated by warlike ambitions. Within the framework of the military state all resources of the citizens are placed in the service of war. There was established in peacetime a war economy with its attributes so foreign and hostile to democratic liberties and institutions.

The economics of the military state is divided into four phases: (1) the economics of war preparation; (2) the economics of mobilization; (3) the economics of war; (4) the economics of demobilization. The utilization of economics for the purpose of total warfare has some bearing upon the execution and the aim of the new type of war. Total war intensifies the interdependence of military operations and economics to such a degree that it becomes necessary to destroy the military power of the enemy and his economy as well. In this connection German war economists established the following postulates for successful total warfare: (1) Military operations and economic warfare must be integrated; (2) war economics must serve military operations; (3) military operations must be adjusted to prevailing economic conditions. From this point of view the conquest or destruction of important centres of enemy industry or raw materials might be as decisive for the outcome of the war as the destruction of an enemy army. Military operations become a decisive factor in economic warfare.

In the military state the war economist has the function to supply the strategist with the basis for planning operations. Economists are asked to get used to "thinking soldier-like;" they are "soldiers of total war like the soldiers on the battle-front." [28] It is also said that "the dependence of modern warfare on its economic basis—on the supply of raw materials, on the complete exploitation of the industrial plant, and the utilization of the last bit of ground for the production of food for the population—results in the conclusion that, for the cultivated countries of western Europe at least, the effort should always be to carry the war as soon as possible into the territory of the enemy, in order that his economic basis may be destroyed

[28] Major-General Thomas, "Operatives und wirtschaftliches Denken," *Kriegswirtschaftliche Jahresberichte*, 1937, pp. 15–18.

or at least disordered, while one's own is kept as undisturbed as possible. The anxiety to avoid a protracted war of position will lead to a similar conclusion." [29]

In recent German literature the distinctive characteristics of the military economy are described as follows: (1) This economy is definitely an economy of scarcity, not of abundance. This applies to raw material, human resources, and financial means. There is no unused capacity, industrial or otherwise. The utilization of men and materials is pushed to its limits. (2) There is centralized planning under maintenance of some elements of the price mechanism. (3) There are important modifications of the profit motive as the motor of economic activity. Economic realism has forced the recognition of the profit motive by the Nazi dictatorship, although it is discredited in public opinion and official ideology. In those sectors where it has not been possible to replace it by other motivating forces, it has been rigidly limited in its operations. According to Werner Sombart, there is a "devilish idea" hidden in profit calculation. It exerts a "deadening influence," and is "one of the most vicious inventions with which mankind has been fooled by Satan. A large part of our misery is connected with its spread. It has destroyed a colorful world, lowering it to the grey boredom of monetary valuation." [30] However, in spite of all romantic lament of doctrinaires and politicians, private enterprise is regarded as irreplaceable, partly because of its efficiency, partly for political reasons. It is vested with the new function of serving the aims of the military state.[31]

## Total Defense for Democracy

Total defense must be the democratic answer to the total war waged by the dictatorship of the military state. Total defense re-

[29] Foertsch, *op. cit.*, pp. 240ff.

[30] *Deutscher Sozialismus* (Charlottenburg, Buchholz & Weisswange, 1934), pp. 313, 315.

[31] The economic structure and operations of the military state are more fully discussed in the author's "Wehrwirtschaft: The Economics of the Military State," *American Economic Review* 30: 713–23 (1940). Some of the material presented therein has been used in the preceding paragraphs.

quires an unconditional and relentless effort on the part of the whole society with all the weapons supplied by modern technology, psychology and economics. Total defense, like total war, tends to eliminate the dividing line between peace and war since a great variety of defense measures must be taken or prepared before the outbreak of military hostilities. These measures are especially important in the psychological and economic sphere. Total defense requires a type of economic and political organization which involves sacrifices on the part of the citizens. Productive efforts which in peacetime are directed towards the satisfaction of the demand of civilian consumers must be diverted to the production of implements of war. Although this diversion takes place within the framework of political democracy, it infringes by necessity upon some traditional rights and liberties of the citizens. For the sake of the defense effort, governmental control over wide sectors of the economy displaces the right of individual disposal. Planning is essential for war as well as for defense. But there is, as President Gideonse put it so forcefully, no need for a "slavish imitation of the whole apparatus of economic and social regimentation" which has emerged under the dictatorship of the military state. Many of its controls "are adaptions to economic weakness which we do not share. If our possible opponent is expert in marksmanship, it is sensible to copy his methods; but the fact that his *ersatz* trousers will shrink if it rains is no part of the magic." [32] The incomparably greater wealth of our democracy in resources and manpower relieves us from the necessity of using such devices as have been forced upon the dictatorships on account of specific shortages. But wealth must be properly utilized and placed in the service of total defense. Wealth *per se* is no weapon, as the rich man comes to see when he encounters a holdup.

In a democracy the defense effort rests upon the rational decision of free people, while the military state, in its very existence as well as in its war effort, is bound to rely upon an enormous release of emotional energy. In the beginning of the war, emotional forces may

[32] Preface to A. G. Hart, *Economic Policy for Rearmament* (Public Policy Pamphlets No. 33, Chicago, The University of Chicago Press, 1940), p. IV.

lend themselves to violent expansion. Not so under the impact of the more static pattern of a long-drawn war. That is why the *Blitzkrieg* is the type of war most adapted to totalitarian mentality. *Blitzkrieg* means lightning war and is lost when the lightning does not strike. When the thrill of a swift and decisive victory fades away, the purely emotional energy of the subjects of the totalitarian dictators cannot endure. It is also the prolonged war effort which accentuates the economic inferiority of the military state and allows the democracy to adapt its economic organization to the requirements of total defense.[33]

In the total defense economy all individuals of whom the democratic community is composed must organize all their objectives and valuations under the supreme goal of successful defense. Other goals can be retained only if they do not hamper the supreme effort. This is true even when it seems that "a large proportion of wartime measures are directed less towards the support of war operations than towards the protection of particular interests against the effects of war. Such measures may be justified as instrumental to the conduct of war since they prevent complete dislocation of certain industries which it is essential to keep at a certain standard of efficiency." [34]

There must be no fear that a total defense effort is incompatible with the maintenance of democratic institutions. A democratic community as vigorous as the United States with her living tradition of popular government and civil liberties can stand the temporary suspension of certain economic rights of individual disposal and the strain of the defense effort. A suspension of any of the constitutional guarantees of political freedom, on the other hand, is neither required, nor sanctioned by law. In the words of the Supreme Court,

> The Constitution of the United States is a law of rulers and people, equally in war and peace, and covers with the shield of its protection all classes of men at all times and under all circumstances. . . . No doctrine involving more pernicious consequences was ever invented by the wit of man than that any of its provisions can be sus-

[33] Paul Einzig, *Economic Warfare* (New York, The Macmillan Company, 1940), pp. 148–49.

[34] E. R. Walker, "War Economy: The Nature of the Problem," *Economic Record* 16: 10 (1940).

pended during any of the great exigencies of government. Such a doctrine leads directly to anarchy or despotism.[35]

The spirit of democratic tradition and institutions requires that the burden of total defense is distributed as equitably as possible. The occasion of the defense effort must not be allowed to be misused for the creation of special privileges and the incidence of the defense burden must be borne by sacrifices as equal as is possible without hampering the effort itself. Morale is seriously impaired if large defense profits are allowed to be transferred to a few from the bulk of the population which carries the burden of defense.

## The War Organization of the United States

The understanding of the subsequent chapters dealing with specific economic aspects of total war and defense will be facilitated by a brief survey of the administrative organization created to cope with the defense effort of the United States.

Subsequent to the World War, planning for defense was stimulated by the discovery of numerous faults and defections which had prevailed chiefly in the supply services, and, during the late 'twenties, by the growing popular demand for "taking the profits out of war." In 1930 a War Policies Commission was created by joint resolution of Congress to prepare a study of the general subject of defense planning including industrial mobilization and wartime profiteering. This Commission undertook a careful examination of the Industrial Mobilization Plans which had been prepared by the Joint Munitions Board of the Army and Navy Departments. The first Plan of this type had been published in 1931 and was later amended in three subsequent editions, the most recent dating from 1939. The Plan as formulated in 1939 outlines the various coördinating measures to be applied to secure the utilization of resources and mobilization of industry, including priorities, price control and control of foreign trade. It suggested the establishment of various agencies for industrial mobilization in wartime, with a War Resources Administration, in charge

[35] Ex Parte Milligan, 4 Wall. 2,121 (U.S. 1866). Cf. Henry Steele Commager, "The War Powers of the President," New York *Times* Magazine, October 19, 1941.

of one Administrator, as key agency to coördinate the munitions requirements submitted by the armed services with the needs of other government agencies and those of the civilian population.

In August, 1939, political events made the outbreak of a European war imminent. The President then appointed a War Resources Board with advisory functions. In case of an emergency it would have been easy to equip this Board with executive functions. However, the membership of the Board led to criticism on the part of various regional and economic interests. In September, 1939, the Board made a report to the President and has since then ceased to engage upon any kind of activity.

On May 28, 1940, the President appointed an Advisory Commission to the Council of National Defense. The Council itself is a statutory agency composed of the Secretaries of War, the Navy, Interior, Agriculture, Commerce and Labor. The Advisory Commission was subdivided into seven Divisions, each in charge of one Commissioner. Besides these Divisions, which took charge of industrial materials, production, transportation, labor, agriculture, price stabilization and consumer protection, there were subsequently created a number of other agencies which are described more fully below.

Though the name of the Commission seemed to indicate that its functions were of an advisory nature, they actually extended over important responsibilities of executive character. The members of the Commission were so-called dollar-a-year men who either were wealthy enough to rely upon their own financial resources or had to continue to draw an income from their former connections. The Commissioners in charge of the more important divisions such as production, transportation and industrial materials had held leading positions in the industries they then were called to mobilize for defense.

In response to demands for centralization and coördination of the responsibilities of the defense agencies, the Office of Production Management (OPM) was established in January, 1941. This is composed of one Director General and one Associate Director General, both to serve without pay, and the Secretaries of War and the Navy. Mr. William S. Knudsen, head of the Production Division of the Advisory Commission to the Council of National Defense and for-

mer president of General Motors Corporation, and Mr. Sidney Hillman, head of the Labor Division of the Commission and President of the Amalgamated Clothing Workers Union, were appointed Director General and Associate Director General. It was the intention to give both men equal authority in all matters pertaining to defense. In the fall of 1941, some of the policy-making functions of OPM were vested in the newly created Supply Priorities and Allocations Board.

In January, 1942, the administrative organization of the federal defense establishments was as follows. Within the Executive Offices of the President there was created an Office for Emergency Management under the direction and supervision of the President. This Office coördinated the work of most of the federal defense agencies, including the following:

1. Office of Civilian Defense, in charge of the organization of defense activities among the civilian population.

2. Defense Housing Division. This agency had formerly operated as unit of the Advisory Commission to the Council of National Defense.

3. Office of Defense Transportation, to facilitate the coördination of transportation facilities and assure their maximum utilization.

4. Defense Communications Board, to plan the allocation of communication facilities among military and civilian agencies.

5. Office of Scientific Research and Development.

6. Office of Lease-Lend Administration.

7. Office of the Coördinator of Inter-American Affairs, to promote cultural and commercial relations between the Latin American republics and the United States.

8. National War Labor Board, to settle industrial disputes. The functions of this agency are more fully discussed below, p. 182.

9. Office of Defense Health and Welfare Services, with the Federal Security Administrator as Director. This agency was created to coordinate the work of the federal establishments in public health and their relations to defense.

10. Office of Price Administration. This agency originally combined under the name of Office of Price Administration and Civilian

Supply the functions of the Price Stabilization and Consumer Divisions of the Advisory Commission to the Council of National Defense. Civilian Supply was later transferred to OPM.

11. Supply Priorities and Allocations Board, to consist of the Vice President of the United States, the Secretaries of War, Navy and Commerce, the director general and associate director general of OPM, the consultant to the President on the lease-lend program (Mr. Harry Hopkins), and the administrator of OPA. This coördinating and policy-making board was to determine the requirements for military, civilian and other purposes and the policies governing priorities and the allocation of goods among these competing uses. In January, 1942, SPAB's functions were taken over by a War Production Board, with Donald M. Nelson, executive director of SPAB, as chairman (cf. below, p. 193).

12. Office of Production Management. As mentioned above, this key-agency lost important policy-making functions when SPAB was created. The agency is divided into seven divisions of Contract Distribution, Priorities, Labor, Production, Purchases, Civilian Supply, and Materials. Before June, 1941, the functional division of the activities of OPM led to a duplication of work and effort since questions pertaining to single commodities or industries often had to be handled by more than one division, each attending its special function. Subsequently an attempt was made to blend the functional organization with a specific commodity administration. Industrial subdivisions were attached to the Production, Purchases and Priorities divisions, and later to the Civilian Supply and Materials Divisions, granting each division charge over a group of such commodity sections in which their special problems were of paramount importance. In this manner, the Division of Production assumed primary responsibility for aircraft, ordnance, tools, shipbuilding and construction; the Division of Purchases, for food supply, textiles, clothing, equipage, health supplies, civilian defense equipment and containers; the Division of Civilian Supply, for pulp and paper, printing and publishing, lumber and building materials, plumbing and heating, automotive and transportation equipment, electrical products and

durable consumers goods, industrial machinery, and rubber and rubber products; the Division of Materials, for aluminum and magnesium, chemicals, iron and steel, power, nickel, tungsten, copper and zinc, manganese and chromium, tin and lead, mica and graphite, and miscellaneous minerals. In December, 1941, the industrial subdivisions attached to the purchases and civilian supply divisions were made to report directly to the Director General and Associate Director General.

OPM's Division of Purchases does not grant any defense orders but coördinates the procurement work of the Army and Navy Departments. It reviews for clearance, prior to award, all orders in the amount of $500,000 or more.

The specific functions of the various divisions and of SPAB are more fully discussed below, pp. 188 ff.

Outside of the Office for Emergency Management, the following agencies are engaged in important defense work:

1. Board of Economic Warfare, with the Vice President of the United States as chairman and the Secretaries of State, War, Navy, Treasury, Commerce and Agriculture, the Attorney General, and the Coördinator of Inter-American Affairs as members. This Board was created in July, 1941, to serve as a sort of ministry of economic warfare. It is in charge of export control (see below, pp. 288–90), plans and coördinates the international aspects of the defense effort, has been given veto power in economic defense matters, the latter being defined as "the conduct, in the interest of national defense, of international economic activities including those relating to exports, imports, the acquisition and disposition of materials and commodities from foreign countries including preclusive buying, transactions in foreign exchange and foreign-owned or foreign-controlled property, international investments and extensions of credit, shipping and transportation of goods among countries, the international aspects of patents, international communications pertaining to commerce and other foreign economic matters."

2. Departments of the Interior, the Secretary having been appointed Petroleum and Coal Coördinator for National Defense; of

Army and Navy, with the Joint Army and Navy Munitions Board; of Agriculture, with the Office of Agricultural Defense Relations, which took over the functions of the Agricultural Division of the Advisory Commission to the Council of National Defense; of the Treasury.

3. Council of National Defense, composed of six Secretaries (see above, p. 48).

4. Selective Service System.

5. Permanent Joint Board on Defense, United States and Canada.

6. Federal Loan Agency, in charge of the Reconstruction Finance Corporation. The defense program led to the chartering of a number of subsidiaries of the Reconstruction Finance Corporation, such as the Metals Reserve Company, Defense Plant Corporation, Rubber Reserve Company, Defense Supplies Corporation, Defense Homes Corporation, and War Insurance Corporation. Activities of these corporations are discussed below, pp. 186–87.

7. United States Maritime Commission. See below, pp. 193–94.

8. Board of Governors of the Federal Reserve System, to regulate installment credit terms for purchases of durable consumers goods (below, p. 202).

Numerous proposals were made to amend the defense organization in various respects. (1) It was claimed that a single head of the defense organization would be better able to coördinate the defense effort than is possible under a system of boards and joint directorships as they exist with respect to SPAB and OPM. The Executive Director of SPAB was, however, in a position to assume the responsibility for a number of the most important decisions pertaining to the defense effort, and his office is not substantially different from that of the Chairman of the War Industries Board during the World War of 1914–18.[36] (2) Legislative proposals were made to limit the employment of unpaid persons and so-called dollar-a-year men. The number of such persons was 291 in December, 1941. (3) In connection with this fact, complaints were made that control over the various industries was concentrated in the hands of men who by virtue of their vocation and association were interested in the commodities they were called to control. Many of these men continued

[36] See below, p. 193.

to receive salaries from their former connections.[37] In connection with the resignation of the chief consultant of the light, heat and power unit of OPM in June, 1941,[38] it became known that OPM had adopted as policy that paid officials of trade associations might not be employed by the defense organization. The whole problem is of especial importance in connection with monopolies, and was stated in England by the Bishop of Birmingham before the House of Lords as follows: "Should a government officer be paid by monopolists whom he might in the national interest have to coerce?" [39]

[37] Special Senate Committee Investigating the National Defense Program, *Hearings*, 77th Cong., 1st Sess., September 16, 1941.

[38] See below, p. 226.

[39] London *Times*, June 18, 1941. See also Sir William Beveridge, *Some Experiences of Economic Control in War-Time* (New York, Oxford University Press, 1940), pp. 25–26.

# CHAPTER III

# MANPOWER REQUIREMENTS FOR TOTAL WAR

In total war, every citizen tends to become a member of either the armed forces or the home force. Besides the number of available persons, the quality of the population is of supreme importance.

## The Quality of the Population

Standards of quality refer to physical as well as mental and intellectual fitness. It is rather difficult to compare the health prevailing in the various countries upon a quantitative basis. If infant mortality is regarded as an index of health and hygienic standards, the United States is in a most favorable position.

TABLE 3.—DEATHS UNDER ONE YEAR PER 1,000 LIVING BIRTHS, SELECTED COUNTRIES, 1937 OR 1938 *

| | | | |
|---|---|---|---|
| United States | 51 | Germany | 60 |
| " " White pop. | 50 | France | 66 |
| " " Others | 83 | Canada | 76 |
| New Zealand (excl. Maoris) | 36 | Austria | 80 |
| Netherlands | 36 | Japan | 106 |
| Australia | 38 | Italy | 109 |
| Switzerland | 43 | Portugal | 151 |
| England and Wales | 52 | Rumania | 183 |

* League of Nations, *Statistical Year-Book, 1938–39* (Geneva, 1939), p. 37.

With reference to the armed forces of the United States, it has been observed that "youths who volunteered for armed service in 1940 averaged two inches taller and fifteen pounds brawnier than their fathers who enlisted in 1917." [1] Though a larger percentage of

[1] Colonel William J. Donovan, in *This Week* Magazine, February 2, 1941. See also Cabell Phillips, "What the Draft Reveals about Us," New York *Times* Magazine, July 13, 1941.

draftees was rejected in 1940–41 than in 1917–18, this may be due rather to different standards of health and improved opportunities of detecting diseases in their early stages, than to a deterioration of the physical condition of young men since the World War. Military training was bound to have favorable effects upon physical and intellectual fitness. It was reported that the physical strength of naval recruits had risen 33 percent after six weeks of physical training and that their intelligence tests showed an improvement of 17 percent.[2]

However, much improvement is possible with respect to nutrition. It has been pointed out that "our present undernourished fraction of the population is neither able to serve in the army nor to stand the pace in modern industries. Sir John Orr, the British food specialist, was able in a few months of proper feeding to qualify for the army 270 out of 300 draft rejects (excluding those unsound of limb and the like)." [3] In the United States, numerous suggestions were made to submit registrants disqualified for duty with the armed forces under the Selective Training and Service Act of 1940 to a similar program of physical rehabilitation.[4] It was also proposed to extend the coverage of the social security legislation, since "social security," in the words of Governor Saltonstall of Massachusetts, "is a powerful weapon against subversion or fifth column activities." [5]

Not only does total war require healthy soldiers and workers. It also must be waged by intelligent men who have been trained in the use of their capacities. The United States ranks first in such matters as secondary and higher education. No other country grants a higher percentage of its citizens the opportunity of receiving instruction in these institutions. While the following table, which indicates the percentages of the various countries, may not fully reflect differences in the age distribution and in the quality of the instruction offered, it is nevertheless an interesting index of the ranking of the various countries.

[2] Lieutenant Commander Gene Tunney, New York *Times*, August 23, 1941.
[3] John D. Black, "American Agriculture in the New War and Defense Situation," *Journal of Farm Economics* 23: 33 (1941).
[4] *Defense*, August 19, 1941. The impact of the war and defense effort upon nutrition is more fully discussed below, pp. 266–69.
[5] Address before the American Association for Social Security, New York City, April 5, 1941.

TABLE 4.—PERCENT OF POPULATION RECEIVING INSTRUCTION IN INSTITUTIONS OF SECONDARY AND HIGHER EDUCATION, SELECTED COUNTRIES, 1932–38 *

| | *Secondary education* | *Higher education* |
|---|---|---|
| United States | 4.4 (1935) | .72 (1934) |
| U.S.S.R. | 2.2 (1932) | .29 (1933) |
| Germany | 1.4 (1937) | .086 (1938) |
| England and Wales | 1.1 (1936) | .12 (1936) |
| France | .59 (1936) | .18 (1936) |
| Italy | .51 (1933) | .12 (1935) |

* *Annuaire Statistique, 1937* (Paris, Imprimerie Nationale, 1938), pp. 274*–76*; *Statistisches Jahrbuch für das Deutsche Reich, 1938* (Berlin, 1938), pp. 600–602.

With respect to training and education, it is of particular importance to note the constant decline of standards in Germany, where the search for truth and scientific advancement is repressed by the personnel policy of the Nazi regime and its inclination to replace truth and science by romantic myths. Illustrative details are too well-known to warrant further exposition. Most significant is perhaps the founding of a scientific magazine entitled *Deutsche Mathematik* (German Mathematics) designed to cultivate the Teutonic aspects of this discipline.

Besides the qualitative deterioration there has also been a considerable decline in the number of students receiving secondary and higher education. This was less pronounced in the field of secondary education, where the number of students declined from 1,016,362 during the school year 1931–32 to 943,260 in 1937–38.[6] As the table on p. 57 indicates, the decline was much more severe in the institutions of higher learning where the number of students has fallen off by 50 percent. The same has been true with respect to students in technological institutions.

This decline in the number of students, particularly of those attending technological institutions, becomes understandable when it is recognized as part of the German *Blitzkrieg* pattern. Anticipating

[6] Figures from *Statistisches Jahrbuch für das Deutsche Reich, 1933* (Berlin, 1933), p. 521; 1938, pp. 600f.

TABLE 5.—NUMBER OF STUDENTS ATTENDING INSTITUTIONS OF HIGHER LEARNING AND TECHNOLOGICAL INSTITUTIONS, GERMANY, FALL TERMS 1932 TO 1937 *

| *All Students* | *Students in technological institutions only* |
|---|---|
| 1932 118,364 | 20,431 |
| 1933 81,968 | 17,237 |
| 1934 89,093 | 12,628 |
| 1935 81,438 | 11,446 |
| 1936 71,850 | 10,603 |
| 1937 58,325 | 9,554 |

* *Statistisches Jahrbuch für das Deutsche Reich* (Berlin, 1933ff.), 1933, pp. 522–25; 1934, pp. 534–37; 1935, pp. 520–22; 1936, pp. 544–46; 1937, pp. 580–82; 1938, pp. 602f.

a lightning war of short duration, Germany concentrated her efforts upon the attainment of immediate technical results at the cost of starving more remote objectives and fundamental discoveries of future value. In a war of long duration, a policy of this type may spell disaster. This was well recognized by former President Hoover when he urged: "We must at once pour in any money needed for a program of greatly expanded scientific research. From that can come new inventions and new methods of saving of materials and labor." [7] Dr. Frank B. Jewett, president of the National Academy of Sciences, has summarized the position of the United States as follows:

> If we were sure that the defense program would be of short duration and an impending war would be ended promptly in a *Blitzkrieg*, the wise thing doubtless would be to forego fundamental research entirely and utilize our entire national research personnel in the industrial field, using that term broadly. This would insure maximum utilization of existing knowledge in the shortest possible time, and would not waste effort in the acquisition of new knowledge, which in the nature of things requires a long time to be made available in practical form on a large scale. . . .
>
> Despite the fact that the time interval between the discovery of a really new piece of scientific information and its final appearance in

[7] Address before the Pennsylvania Society of New York, December 21, 1940.

large quantity applied science form is necessarily long, it seems clear that so far as fundamental science is concerned, the United States cannot accept *Blitzkrieg* philosophy. Our aims, our problems, and our situation all counsel the reverse.[8]

## The Armed Forces

Modern mass armies are of comparatively recent origin. It was not until the nineteenth century that the size of the army began to exceed such numbers as the older military authorities regarded as manageable. Most often this number was far below 100,000. The situation changed with the Napoleonic wars and, particularly, with the Franco-Prussian War of 1870–71, which was opened up with 480,000 men on the German side. During the World War of 1914–18 total troup mobilizations were in excess of 65,000,000 men. At the end of the war, during the summer and fall of 1918, the number of men under colors still came close to 30,000,000. Within the various countries the percent of the total population under colors ranked from 20 in Great Britain, France and Germany to 4 in the United States. Had the United States mobilized an army composed of 20 percent of her population, such an army would have outgrown, or come close to, the numbers of any two of these major belligerents combined.

It was thus rather a surprise when during the years preceding the outbreak of the war in 1939 numerous military writers advanced the doctrine of the passing of the mass army. In its substance this theory was based upon the opinion that mass infantry attacks had become a thing of the past; that fast tanks had come to represent not a mere support to infantry but a new style cavalry; and that modern warfare, which was said to be "qualitative," required the specialized skill only available within the closed ranks of a small professional army. In part, these doctrines were based upon a mistaken interpretation of certain German writings which had lent themselves with particular ease to misunderstanding and ought to have been scrutinized more carefully. Liddell Hart, the outstanding exponent of this theory in the English-speaking world, found a warm response among widely

[8] Address before the American Chemical Society in Newark, N.J., December, 1940.

separated groups which endorsed it on a variety of grounds. The anti-democratic tradition of the military found a ready rationalization in a doctrine which, if true, might well ring the death-knell of democracy. The progress of democratization had been dependent upon the popular army, and the revival of exclusive professional armies might lead to a form of government where power was no longer in need of general popular support.

> The secret of the democratization which took place in the eighteenth and nineteenth centuries lay in the simple fact that one man meant one gun, the resistance of one thousand individuals one thousand guns. Today the relative strength of the opposed forces is not to be measured by counting heads but by the number of people who can be killed or held in terror by a single bomb. The guarantee of the general democratization of the preceding century lay not only in industrialization but also in the fact of universal conscription which, especially after a lost war, could become the means of a general insurrection. For the future everything will depend on the extent to which the military technique will require the support of the general population as well as of a relatively small army.[9]

The erroneousness of the theory of the decline of the mass army is illustrated by the development of the present war. General G. C. Marshall indicated that Germany, great exponent of mechanized warfare, had twelve fully mechanized divisions in the recent war in France, out of a total of 240 divisions.[10] "Th each mechanized soldier has to have at least eleven non-mechanized infantrymen and seven or eight corps troopers along with him to carry on that kind of war. These figures alone answer the overconfident opinion in America that our future wars can be fought with a large number of machines in the hands of a few sergeants and mechanics." [11]

Moreover, the rapid rise of the replacement rate has added to the importance of large available reservoirs of manpower. Possony esti-

[9] Karl Mannheim, *Man and Society in an Age of Reconstruction* (New York, Harcourt Brace and Company, 1940), p. 48.

[10] Letter to Representative Ross A. Collins, of June 21, 1940. *Harper's* Magazine, December, 1940, pp. 9–11.

[11] Carle C. Zimmerman, "Familism and War," paper delivered before the annual meeting of the American Sociological Society, Chicago, December 29, 1940.

mates that "in the Great War the chance of a soldier being killed after a year was 15 to 20 percent," [12] while the present conditions of warfare require a much swifter replacement. The same writer points out that "under the most favorable conditions not more than 1 in 1,000 of the entire population of any country is suitable for flying, and probably a still smaller number for driving tanks." [13] The validity of this estimate is borne out by such facts as the rejection of 80 percent of all applicants for pilot training in the Second Corps area after physical examinations.[14] The significance of the high replacement rate in conjunction with the special skills and personal characteristics required for military aviation and the like is especially evident with respect to countries engaged in offensive warfare. Mr. Hanson W. Baldwin, military writer of the New York *Times*, pointed out in August, 1941, that "it is the pilot and crew losses, that will be the first restrictive factor in German air strategy." [15] Though a large number of pilots whose machines are shot down are successful in bailing out, this does not lower the replacement rate if the craft is shot down over enemy territory. In this concrete instance, there is thus an advantage for defensive operations in the air.

It is interesting to note that the Germans themselves have not only recruited an army of large size but have stimulated population growth by means of various devices. This policy is indeed an old one, and various militaristic governments of the past have made use of it. The Maréchal Maurice Comte de Saxe, a military expert of the eighteenth century, proposed marriages to last only five years, a notion designed "to produce more soldiers and thereafter diminish them. It would mean putting the youth of a nation into a military orphans' home." [16] There is certainty that military preparedness was, to say the least, a contributing factor in the population policies devised in Italy and Germany in recent years, policies in which Japan

[12] Stephen Th. Possony, *To-Morrow's War* (London, William Hodge and Co., 1938), pp. 98–99.

[13] *Ibid.*, p. 113.

[14] Statement of the head of the acceptance board for flying cadets in the Second Corps area; New York *Times*, December 11, 1940.

[15] August 29, 1941.

[16] Alfred Vagts, *A History of Militarism* (New York, W. W. Norton and Company, 1937), p. 83.

later joined.[17] The measures applied range from marriage loans to bachelor taxes and grossly immoral practices recently proposed by the organ of the Hitler Elite Guard.[18] In certain German municipalities, unmarried women who announce to the authorities in advance their intention to become mothers, receive 500 marks from the municipality when the child is born, and the town takes care of the child.[19] Upon the outbreak of the war in 1939, members of the Hitler Elite Guard were advised against "qualms or fears" to translate into fact during the war "the ancient saying that only he can die peacefully who has sons and children. . . . Beyond the limits of bourgeois laws and customs which ordinarily are probably necessary, it can become an exalted task even outside of wedlock for German women and girls of good blood to become—not frivolously but imbued with deepest moral concern—mothers of children begotten by soldiers moving to the front without knowing whether they will return or die for the fatherland." [20]

Germany started the war in 1939 at a time when her population of military age was at its peak. For many years, German students of population movements had closely followed the age composition in the various countries. The following table is reproduced from a German publication.

TABLE 6.—MEN, 20 TO 45 YEARS OF AGE, VARIOUS COUNTRIES, 1925, 1940, 1950, 1960 (1925 = 100) *

| | *1925* | *1930* | *1940* | *1950* | *1960* |
|---|---|---|---|---|---|
| Germany | 100 | 109 | 115 | 114 | 103 |
| France | 100 | 103 | 99 | 100 | 97 |
| Great Britain | 100 | 105 | 113 | 113 | 104 |
| Italy | 100 | 112 | 125 | 148 | 149 |
| Poland | 100 | 118 | 141 | 176 | 185 |

* F. Burgdörfer, *Volk ohne Jugend*, third edition (Heidelberg, Vowinckel, 1937), p. 404.

[17] The German birth-rate increased from 14.7 in 1933 to 19.7 in 1938. The Italian declined from 29.7 in 1921–25 to 23.8 in 1931–35 and was 23.6 in 1938.

[18] *Das Schwarze Korps*, January 31, 1940.

[19] *Das Schwarze Korps*, April 6, 1939.

[20] Order issued on October 28, 1939.

With respect to manpower, Germany thus started the war at a time when she was in a highly favorable position. Postponement of aggression would have encountered a steadily growing number of Poles of military age. The special disadvantage which confronted France in 1940 becomes more clear if the comparison is limited to the group of 20 to 25 years of age. The small size of this age group during 1940 reflected the effects of the World War of 1914–18 and the concomitant decline in births.

TABLE 7.—MEN, 20 TO 25 YEARS OF AGE, VARIOUS COUNTRIES, 1925, 1940, 1950, 1960 (1925 = 100) *

| | *1925* | *1930* | *1940* | *1950* | *1960* |
|---|---|---|---|---|---|
| Germany | 100 | 105 | 62 | 83 | 80 |
| France | 100 | 98 | 53 | 93 | 84 |
| Great Britain | 100 | 107 | 91 | 87 | 86 |
| Italy | 100 | 117 | 89 | 122 | 122 |
| Poland | 100 | 125 | 83 | 136 | 139 |

* F. Burgdörfer, *op. cit.*, p. 404.

Corresponding figures for the United States indicate that, while the total population is expected to reach a peak in 1980, men of ages 18 to 44 will increase from 28,000,000 in 1940 to a maximum of 30,-300,000 in 1955, and will gradually decline subsequently. As compared with the countries of western Europe and Germany, our military population will be at its maximum in numbers at a time when the military population of these countries already declines. If we consider men of ages 18 to 20, 21 to 35, and 36 to 44, the time at which maximum numbers are reached gradually advances. There is thus a tendency toward increase in the average age of our military population just as there is such tendency with reference to our population at large. However, "for the next decade and a half—years which may prove to be among the most critical in world history—the potential military force of this country will still continue to grow." [21]

[21] "Men of Military Age," Metropolitan Life Insurance Company, *Statistical Bulletin*, February, 1941, pp. 1–3.

The total strength of the military forces of the various countries of November 1, 1940, is indicated in the following table.

TABLE 8.—MILITARY FORCES OF VARIOUS COUNTRIES, NOVEMBER 1, 1940 *

| | | | |
|---|---|---|---|
| British Empire | 2,542,000 | Germany | 6,000,000 |
| Australia | 150,000 | Greece | 601,160 |
| Canada | 265,000 | Hungary | 900,000 |
| Eire | 25,000 | Italy | 7,785,890 |
| Great Britain | 1,750,000 | Japan | 2,255,000 |
| India | 301,500 | Sweden | 628,000 |
| New Zealand | 30,000 | Switzerland | 572,840 |
| South Africa | 20,000 | Turkey | 800,000 |
| Bulgaria | 670,000 | U.S.S.R. | 10,150,000 |
| China | 3,000,000 | United States | 799,903 |
| Finland | 401,300 | | |

* *The World Almanac*, 1941, p. 97.

By December, 1941, the armed forces of the United States had increased to 2,000,000 men. It was expected at that time that they would continue to rise to about 7,500,000 men.[22]

## Impact of Productivity upon Available Manpower

According to the best available information, population resources of the various countries are as indicated in Table 9, p. 64.

Though there are considerable differences in the age composition of the various peoples, it can be stated as a rough approximation that 50 percent are between the ages of 15 and 49. The variations in the age distribution of the remaining 50 percent are far greater. They are of significance in total war since they affect the number of people over 50 years who can replace younger persons in industrial occupations and elsewhere.

Since about one-half of the population is composed of women, roughly 25 percent of the population is the maximum available for military purposes proper. This maximum, however, is restricted by the number of physically defective persons and by the requirements

[22] New York *Times*, December 14, 1941.

for industry, agriculture and other essential pursuits of the home front.

The potential army quota, or number of workers who can be mobilized for military service without seriously disturbing the function of the economic system, is different in the various occupations and depends upon such factors as war importance of the industry, proportion of women, children and unskilled workers employed, and possibilities of upgrading.[23] The potential army quota for a country

TABLE 9.—POPULATION OF VARIOUS COUNTRIES, ESTIMATES OF DECEMBER 31, 1937, AND LATEST CENSUS (IN MILLIONS) *

| | | |
|---|---|---|
| British Commonwealth | | 500 |
| United Kingdom | 46 | |
| Canada | 11 | |
| Australia and New Zealand | 9 | 68 |
| South Africa | 2 | |
| China | | 450 |
| U.S.S.R. | | 169 |
| United States | | 130 |
| Germany (including Austria) | 75 | |
| Italy | 43 | 118 |
| France | 42 | |
| Norway, Netherlands, Poland, Belgium, Denmark, Czechoslovakia (1938), Luxembourg | 74 | 116 |
| Japan | 72 | |

* League of Nations, *Statistical Year-Book, 1938–39* (Geneva, 1939), pp. 14ff.

as a whole is closely related to the methods of production and the productivity of labor. The higher the latter, the larger the quota. If the lines of communication and international trade are kept open, the proportion of the people available for military purposes is thus largest in that country which specializes in the most favorable lines of production. From this point of view, free trade secures better opportunities for defense than are available under conditions of protectionism.

Upon the basis of this reckoning, Germany has placed herself at a

[23] Hans Speier, "Class Structure and 'Total War,'" *American Sociological Review* 4: 372 (1939).

relative disadvantage owing to her efforts to stimulate home production of food without regard to the specific location factors which are more favorable for food production elsewhere. While Germany diverted six times as many people as the English to work on the land, the English used to concentrate upon such activities where conditions of production were favorable. The goods thus produced are exported and exchanged against a larger number of foreign products than can be produced at home. Germany, on the other hand, did not limit her attempts to obtain self-sufficiency to food production. By utilizing scarce deposits of minerals and various substitute products, she has adopted methods of production "which are wasteful of labor. . . . And the more Germany succeeds in making her raw materials at home, the greater will Britain's advantage in manpower become." [24] It has been calculated that 162 men are required to feed 1,000 consumers in Germany, while 98 suffice in Britain. Though it is not easy

TABLE 10.—AVERAGE REAL INCOME PER HEAD OF THE WORKING POPULATION, IN INTERNATIONAL UNITS, SELECTED COUNTRIES, 1925–34 *

| | | | |
|---|---|---|---|
| United States | 1381 | Czechoslovakia | 455 |
| Canada | 1337 | Greece | 397 |
| New Zealand | 1202 | Finland | 380 |
| Great Britain | 1069 | Hungary | 359 |
| Switzerland | 1018 | Japan | 353 |
| Australia | 980 | Poland | 352 |
| Netherlands | 855 | Latvia | 345 |
| Eire | 707 | Italy | 343 |
| France | 684 | Estonia | 341 |
| Denmark | 680 | Yugoslavia | 330 |
| Sweden | 653 | U.S.S.R. | 320 |
| Germany | 646 | South Africa | 276 |
| Belgium | 600 | Bulgaria | 259 |
| Norway | 539 | Rumania | 243 |
| Austria | 511 | Lithuania | 207 |

* From Colin Clark, *The Conditions of Economic Progress* (New York, The Macmillan Company, 1940), p. 41. By permission of The Macmillan Company, publishers.

[24] See Geoffrey Crowther, *Ways and Means of War* (New York, Oxford University Press, 1940), pp. 46–47. This is also the source of the following calculation.

to make concrete estimates of similar differences in the amount of labor diverted to other types of production, they are bound to be considerable.

Differences in productivity are reflected in corresponding differences in real income. In Table 10, p. 64, a comparison is given of the average real income per head of the working population of various countries. The income is expressed in terms of a common denominator, the international unit, or, the amount of goods and services which one dollar would purchase in the United States over the average of the period 1925–34.

## The Home Front

In view of the great differences of productivity in the various countries as they are reflected in the preceding table, the numerical ratio of the number of fighting forces and of workers necessary to maintain them and supply them with arms is subject to large variations in the different countries. The estimated ratios which have been published have no general validity and should serve no other purpose than that of illustrating the underlying principle. These ratios are also definitely tied up with the state of the arts. Adam Smith estimated that in his time no more than one percent of the population could be employed as soldiers, compared with 20 to 25 percent "in the little agrarian states of ancient Greece." [25] With reference to the present Mr. William S. Knudsen has pointed out that "one man in the field requires the backing of ten men at home," [26] and numerous other estimates have been made public, more or less vaguely defined and extending as high as 1 to 17.[27] In considering this enormous ratio, account must be taken of the nature of modern war implements and of the fact that they are subject to speedy destruction. The high rate of replacement is illustrated by the decline in the average number of shells which it took to bring down one enemy airplane during the

[25] *The Wealth of Nations*, Bk. 5, Chap. 1, Pt. 1.

[26] Address before the Military Order, Veterans of Foreign Wars, New York City, April 5, 1941.

[27] For a detailed survey of the various calculations, see Horst Mendershausen, *The Economics of War* (New York, Prentice-Hall, 1940), p. 97.

World War of 1914–18. This number, which had been 11,000 in 1916, fell to 4,000 in 1918 and to 1,500 during the last few weeks of the war.[28] More recent Russian estimates give the following percentages of war material that must be replaced each month: airplanes, 40 to 50; tanks, 30 to 40; rifles and light machine guns, 6; heavy machine guns and artillery, 5; other arms, 4 to 33.[29]

The defense program of the United States has been accompanied by a continuous growth of employment and markedly reduced the number of unemployed. By May 1941, almost three million more workers had been drawn into non-agricultural employment than a year before. During the year starting in May 1941 non-agricultural employment was expected to increase by another three million, though dislocations due to the restriction of production in certain lines of civilian consumers goods were bound to create some further unemployment. The monthly average of non-agricultural employment rose from 33,362,000 in 1938 to 34,624,000 in 1939, 35,756,000 in 1940, and 40,693,000 in December, 1941 (U.S. Bureau of Labor Statistics). Unemployment was estimated to have declined from 8,735,000 in May, 1940 to 3,962,000 in May, 1941, and to 2,536,000 in June, 1941 (National Industrial Conference Board).

Since the number of idle workers in the labor market available for employment was estimated at 4,000,000 early in 1941, it was expected that the labor supply would be exhausted some time in 1942.

Industries directly affected by the defense program expanded their labor at a faster rate than other industries. The expansion was, however, general, since the increase in defense production stimulated the production of basic materials and the construction of new plants, while at the same time inducing an increase in the production of consumers goods. During the period from August, 1939, to January, 1941, factory employment of selected types increased by the following percentages: aircraft, 225 percent; machine tools, 103 percent; shipbuilding, 96 percent; nonferrous metals and products, 38

[28] *Défense Aérienne du Territoire* (Paris, Editions Cosmopolites, 1934), p. 98; quoted in Lieutenant-General N. N. Golovine, "Air Strategy," *The Royal Air Force Quarterly* 7: 170 (1936).

[29] Quoted in Institut für Konjunkturforschung, Berlin, *Industrielle Mobilmachung* (Hamburg, Hanseatische Verlagsanstalt, 1936), pp. 24–25.

percent; iron and steel and their products, 32 percent; rubber products, 19 percent; textiles and their products, 3 percent.[30]

The defense program, especially the construction of ships and of army and navy posts and bases, required an abnormally high proportion of skilled workers. Approximately 37 percent of this work called for skilled workers, and about 38 percent for semi-skilled.[31] Consequently there were shortages in some lines of skilled trades as early as 1940. Labor shortages may exist in certain localities or trades in spite of heavy unemployment in other areas and trades. The geographical and occupational mobility required for the absorption of available labor reserves is impeded by such factors as inadequate housing facilities and excessive rents in the centers of the new production, lower degree of unionization in the new occupations or absence of trade unions.

Public and private policies designed to facilitate the transfer of workers to the new occupations are more fully discussed in Chapter 6. In occupations requiring a great deal of skill a considerable period of time must elapse before additional workers are available. In the metropolitan area of New York, 21 airplane factories required an additional personnel in engineering of 6,000 men within one year. This number is five times greater than the number of all men turned out of all the engineering schools within the territory in one year, and one-half of the total output of all the schools in the United States.[32]

It is especially during the first few months of war that the elimination of large numbers of workers and their absorption by the military forces creates disturbances often resulting in unemployment. Under modern conditions of specialization the production of the various enterprises requires the specialized efforts of all productive agents. The elimination of some necessitates the elimination of others. The outbreak of war thus makes people unemployed because of the ces-

[30] U.S. Bureau of Labor Statistics. See *Survey of Current Business*, Vol. 20, No. 2: 64 (1940); Vol. 21, No. 3: 25–26 (1941).

[31] A. F. Hinrichs, "The Defence Programme and Labour Supply in the United States," *Canadian Journal of Economics and Political Science* 7: 415 (1941).

[32] Report of Sub-Committee of the New York Committee on Engineering Training for National Defense, December 1, 1940.

sation of work on the part of other people. It may also happen that the number of women reported as unemployed increases, since the military service of fathers and husbands causes many women to look for employment. While the demand for woman labor increases, there is no certainty that it will absorb exactly the increment in the supply and that the type of labor available is suitable to meet the demand.

During the World War of 1914–18 unemployment of trade union members in Germany rose from 2.9 percent in 1913 to 22.4 percent in August, 1914. There was then "so little understanding of the nature of modern warfare that an economist of reputation publicly proposed the undertaking of large-scale public works in order to relieve unemployment." [33] During the first four months of the present war the number of unemployed increased in England from 968,108 in August, 1939, to 1,219,503 in January, 1940. In spite of the subsequent decline it was still 521,388 in January, 1941, and 277,280 in July of that year.

## Labor Reserves

The labor reserves which can be made available for total war consist of the following groups: the unemployed; the submarginally employed; persons who would not accept employment under normal circumstances; persons regarded too young or too old for work under normal circumstances; women; and prisoners of war and foreign labor.

*Submarginally employed persons.*—Of all submarginal occupations, certain types of farming contain the largest labor reserves which can be made available by appropriate policies. Mr. Chester C. Davis, then commissioner in charge of the agricultural division of the National Defense Advisory Commission, estimated that 5,000,000 low-income, single cash-crop farmers could be induced to leave the land and go into defense industries. He pointed out that

> these men can be drawn into defense production with little or no sacrifice so far as agricultural production is concerned. . . . Under exist-

[33] L. Grebler and W. Winkler, *The Cost of the World War to Germany and Austria-Hungary* (New Haven, Yale University Press, 1940), pp. 24f.

ing and prospective conditions, there are too many people trying to make a cash income growing cotton and tobacco for them to draw a satisfactory American standard of living out of it. . . . Our maximum defense effort depends in the last analysis on the number of people we can bring into defense production. The great untouched reservoir is in the low-income, single cash-crop rural areas of the predominantly agricultural states.[34]

There is little doubt that the proposal, if materialized, would have facilitated agricultural adjustments long overdue. No effort was made, however, to expand defense industries into rural areas, as Mr. Davis had proposed, and the continuation of the federal farm program counteracted such incentives to mobility as emerged under the impact of defense production. It was questionable, however, whether many farmers would care for the new opportunities. Investigations of the Tolan congressional committee indicated that the majority of the Dust Bowl migrants did not desire to go into shipbuilding or aircraft production but wanted to start farming again.

*Employment of women, children, and aged persons.*—The part of the labor reserve which is composed of women, children, and aged persons amounts to over 50 percent of the population. The exact proportion depends upon the extent to which woman labor was used before the emergency situation. The development of new types of machinery and technological progress has facilitated the employment of women in many lines even of the heavy industries which in the past had to be reserved for male workers. In the United States, women were trained for aircraft manufacturing in 1941. Because of the excessive drain upon male workers, aircraft companies anticipated a future labor supply of which women would constitute 60 percent. In Canadian arms plants women constituted one-fifth of the labor force in June, 1941. During the same month the United States Civil Service Commission renewed its plea to federal agencies to employ more women in a greater variety of positions. The Federal Security Administration, in a study released in August, 1941, pointed out that of a sample of 1,894 occupations in 21 defense industries, including the airplane, shipbuilding and machinery industries, 1,185 were of

[34] Address before the Southern States Coöperative, November 1, 1940.

such type that the degree of physical strength required and the conditions under which the work was performed presented no barrier to the employment of women. 654 of the occupations were of a kind in which women could be placed immediately after a brief period of training or even without such period. Only 331 occupations were found to be definitely unsuitable for women.[35]

In England, the number of women employed rose from 4,000,000 in 1939 to 8,000,000 in March, 1941. About two-thirds of all women between the ages of 15 and 55 were then gainfully employed. The number of women taken into wartime employment was about equal to the number of men called to the armed forces.

In both England and Germany, the curtailment of production in non-essential industries made large numbers of women workers available for wartime work. There are no exact figures available indicating the extent of woman labor in Germany. It is known, however, that long before the outbreak of the war

experiments were carried out to determine in what jobs women could best be employed and how the greatest efficiency could be achieved with least strain for the woman. Long before the first shot was fired, female students went into key German industrial plants—usually during vacations—to perform tasks which experts thought at some future day might be done on a large scale by women. Each evening these girls wrote reports about their day's labors, explaining, for example, just what part of their bodies were most exhausted and what had most disturbed their nerves in the course of the day.

Engineers thereupon endeavored to alter the manner of performing specific tasks, so that the unpleasant effects of the labor reported by the girls would be avoided. And similar tests with the same objective have been carried out on a large scale ever since the war began.

As a result of all these tests, routine in many plants has been changed and division of labor somewhat modified; machines have been simplified or altered, so that women can be seated while working; special machines have been constructed and everything possible has been done to increase the efficiency of the woman with a minimum of strain on her health.

Experience has demonstrated, German experts say, that in some tasks hitherto performed almost exclusively by men, particularly those requiring deftness of mind and hand, women are more efficient than

[35] New York *Times*, June 10, 17; July 15; August 16, 22, 1941.

men, whereas in heavy, chiefly physical, labor they have not proved very satisfactory. Older women, particularly those whose husbands work in factories or industrial plants, are most quickly adjustable to industrial labor, the German experiments revealed.[36]

*Prisoners of war and foreign labor.*—Prisoners of war and foreign labor are employed in Germany on a vast scale. Recent reports estimate the total number of foreigners working in Germany at over 2,000,000, with 70 percent in agriculture and the remainder in industry.[37] Foreign labor in agriculture is composed of 650,000 war prisoners from western countries and still unreleased Polish prisoners, 469,000 Poles drafted from the civilian population, and 92,000 Italians, Slovaks, Hungarians and workers of other nationalities. 670,000 civilian workers were imported from the occupied countries to work in mines and industrial enterprises. This figure does not include the Czech workers, who are not classified as foreigners and are estimated at 150,000. Included in the figure are 100,000 Netherlanders, 70,000 Belgians, 70,000 Italians and 46,000 Slovakians. Smaller numbers of Danes and Norwegians are constantly forced to work for the German war machine.[38]

## Labor-Saving Devices

Scarcity of labor in wartime leads to an increase in the use of labor-saving devices in productive processes. Labor-saving devices are durable instruments of production, or capital. The forces which advance or retard the substitution of labor by capital in a free economy regulated by the profit incentive are extremely complex, and range from present and anticipated rates of wages and interest to the relative valuation of present and future labor. The use of labor-saving devices involves the substitution of late inputs of labor by early inputs required for the production of the devices. Net saving of labor occurs when there is an excess of late inputs of labor not supported by the device over late inputs supported by it minus early inputs re-

[36] C. Brooks Peters, "Woman's Great Share in the 'Total War' in Germany," New York *Times* Magazine, March 9, 1941. See also *ibid.*, Kathleen Woodward, "Woman's Great Share in the 'Total War' in Britain."

[37] *Neue Zürcher Zeitung*, May 7, 1941.

[38] New York *Times*, April 26; May 4; July 24, 1941.

quired for the production of the device itself. In general, the saving thus produced occurs only over time. Application of labor-saving devices in wartime will thus depend upon the following factors: (1) the anticipated duration of the war; (2) the availability of material needed for the production of the device besides the early input of labor; (3) the amount of the early input of labor required for the production of the device, relative to the excess of late inputs without the device over late inputs supported by the device. If the amount of the early input is zero, application of the device results in net saving of labor even if the device is used only once. The larger the early input required, the larger the anticipated number of productive processes must be, or the length of time during which the device will be used, and/or the excess of late inputs without the device over late inputs supported by the device. Recent trends seem to indicate that the early input of labor required by technological progress tends to become smaller as the economy attains greater maturity.

The growth of the instruments industry in the United States during the World War of 1914–18 illustrates the increasing importance of labor-saving devices in wartime. During the period from 1914 to 1919, the value of production of all instruments rose by 250 percent, and the corresponding increase of a smaller sample of industrial instruments was as high as 435 percent.[39] Though other factors such as the shift from imported to domestic instruments contributed to this development, there is no doubt that the shortage of skilled labor proved a powerful stimulus towards instrumentation in industry.

## Productivity of Labor in Wartime

War sets powerful forces in motion which are of intense effect upon the productivity of labor. Though it is extremely difficult to strike a short-run balance of the various factors affecting productivity favorably and unfavorably, there is little doubt that the long-run effects of war upon productivity have been favorable in the past. Under the impact of the war effort technological progress and novations are accelerated and stimulated. War efforts have been the most

[39] Works Progress Administration, National Research Project, *Industrial Instruments and Changing Technology* (Philadelphia, 1938), p. 28.

powerful force causing mechanization of American agriculture. The volunteer and draft legislation of the civil-war period and the concomitant depletion of the agricultural labor supply by more than one-third proved, in the face of rising demand, to be "the needed stimulus to force the rapid mechanization of agriculture." [40] Total value of farm machinery in use in the United States doubled from 1860 to 1880. During the World War of 1914–18, annual purchases of gasoline tractors increased from 27,819 in 1916 to 96,470 in 1918 and continued to increase until 1920.[41]

Among favorable short-run influences the higher productivity of labor under full-capacity operations of industry seems of the greatest importance. It is also worthy of attention that the optimum productivity of labor might increase as a result of an expansion of industrial plants. Imperfections of competition or insufficiency of demand may have resulted in the postponement of such expansion. In wartime the expansion of demand and scrutinization of monopolistic practices may stimulate the construction of plants having optimum size. It is not certain, however, whether these favorable effects suffice to outweigh the decline in productivity which is bound to accompany the employment of labor reserves and the dilution of the labor force.

The decline becomes accentuated when the use of labor reserves is followed by the use of low-grade or substitute materials and when standards for the maintenance and replacement of the instruments of production are lowered. During the World War of 1914–18, the efficiency of newly employed German railway workers was 20 to 40 percent below normal. In coal mining, the average yield per worker per shift declined 50 percent between 1913 and February, 1919.[42]

Productivity declines further under the influence of increasing industrial accidents resulting from speed-up in work, the use of new processes and the employment of the labor reserves. If working hours

[40] Arnold Tilden, *The Legislation of the Civil-War Period Considered as a Basis of the Agricultural Revolution in the United States* (Los Angeles, University of California Press, 1937), p. 92. See also A. Russell Bond, *Inventions of the Great War* (New York, The Century Co., 1920); Roger Burlingame, *The March of the Iron Men* (New York, Charles Scribner's Sons, 1938), Chap. 9.

[41] E. Altschul and F. Strauss, *Technical Progress and Agricultural Depression* (New York, National Bureau of Economic Research, Bulletin No. 67, 1937), p. 4.

[42] Grebler and Winkler, *op. cit.*, p. 33.

are unduly lengthened, production falls off. Measures of industrial dispersion and concentration, redistribution of the working population, reduced food supplies, housing shortages, transportation difficulties, absenteeism, blackouts and air-raid alarms are among the factors exerting adverse influence upon workers' productivity in wartime. If the strain is severe and of long duration, these short-run effects may acquire a more lasting significance.

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# CHAPTER IV

# THE WAR EFFORT IN REAL TERMS

The subsequent discussion of the war effort proceeds in terms of the real effort involved, *i.e.*, in terms of goods and services produced to carry on war, and of sacrifices imposed upon the consumer. Manpower and resources, translated into goods and services, are the sinews of war. Contrary to a widely held opinion, "finance is not fundamental. . . . If resources are inadequate, are used wastefully, or are difficult to mobilize, or if the will to see the job through is lacking, no feat of financial dexterity will compensate for these deficiencies." [1] However, though wars are not fought with money, it is possible to measure the war effort and the various magnitudes involved by money. Money is only a measurement of economic efforts, and when it is said that the war effort requires the expenditure of so-and-so many billions, it is well to remember this limited function of money. The war effort is carried out by means of ships, airplanes, munitions and other implements of warfare, not by means of money. However, as will be shown in Chapter 11, monetary and financial policies are of great importance in that they determine, in part, the distribution of the real burden of war among the different groups of the population.

There is one exception to the statement that the war effort is carried out with men and materials, and not with money. Money claims against foreign countries might enable a belligerent to add to its implements of war through the importation of goods. Similar considerations apply to gold reserves and loans from abroad, which, too, may be used for the payment of imports. Stocks of gold are potential claims to other nations' goods and services as long as these are willing to exchange the latter against gold. If goods become ex-

[1] J. F. Parkinson, "Some Problems of War Finance in Canada," *Canadian Journal of Economics and Political Science* 6: 404 (1940).

tremely scarce, nations are not inclined to exchange them for gold and have refused to accept gold in payment of exports. During the World War of 1914–18 Sweden imposed an embargo upon the importation of gold, in order to frustrate British efforts to pay for Swedish exports with gold instead of with commodities. During the present war the Swedish Central Bank considered the replacement of part of its gold reserves by stored commodities, even though the latter could not then be imported into Sweden. It was believed that such a measure would allay the risk of bank reserves consisting exclusively of gold and foreign exchange, and would facilitate the solution of the supply problem after the end of the war.[2]

Many popular illusions about the role of gold and money in war are rooted in ancient experiences related to past types of warfare. It is true that the Austrian general Raymond Count Montecuccoli (1609–81) called money the "*spirito universale*" of war and referred with approval to the saying of still earlier military writers that "*danari, danari et danari*" are the sinews of war.[3] However, the general lived at a time when war was carried on by mercenary soldiers whose services were sold to the highest bidder. After the decline of mercenary troops gold and money continued to be of great importance as means of international payment as long as the trade with neutral powers was left substantially intact. The subsequent change is well illustrated by the Swedish policy, just mentioned, during the World War of 1914–18.

## The War Effort of the Various Countries

A comparison of the war effort undertaken in the various countries requires a common denominator for measurement. For the purpose of comparing real incomes in the various countries, Mr. Colin Clark has coined the concept of international unit, which is defined as the amount of goods and services which one dollar could purchase

[2] *Neue Zürcher Zeitung*, February 10, 1941. Other factors taken into consideration were: low return on the bank's deposits with foreign banks; the impending "freezing" of Swedish deposits in the United States.

[3] This saying means "money, money, and money again," and already occurs in Tacitus, *Histories*, Bk. 2, Chap. 84.

in the United States over the average of the period 1925–34.[4] More recently Mr. Clark translated the national defense expenditures of the various countries into international units. The details of this comparison are given in Table 11, p. 79. Mr. Clark arrives at the conclusion that the annual war effort of Germany, including the contributions from Italy, the conquered territories, and such exports from other countries for which no import of equal value are given in return by Germany, amounts to 29,000,000,000 units. This compares with 18,300,000,000 units for Great Britain and 13,500,000,000 units for the United States, the effort of the latter calculated upon the basis of an annual defense expenditure of $12,000,000,000. We have supplemented Mr. Clark's estimates by figures announced by Mr. Stacy May, chief of the division of reasearch and statistics of OPM.

In appraising the comparisons presented in the table account must be taken of the great increase in United States defense production which has taken place since the table was compiled and was further stepped up after this country entered the war as a belligerent. The annual rate may pass $50,000,000,000 in 1943. Furthermore, the contributions of the British Empire have increased since the table was compiled and further expansion is expected.[5]

## The Economic Origin of War Output

All war output originates either from an expansion of production, a diversion of production, or the liquidation of existing assets.

*Expansion of output.*—Once the productive capacity of a country is fully utilized, the additional production of the implements of total war requires the conversion of productive activities from production for civilian consumption to production for war and a concomitant reduction of civilian consumption. However, the outbreak of war, though it generally avoids the years of heaviest unemployment, often

[4] *The Conditions of Economic Progress* (New York, The Macmillan Company, 1940), pp. 39–41. See also above, p. 65.

[5] With reference to India, Viscount Samuel stated before the House of Lords on August 14, 1940: "India indeed is helping, and helping powerfully, in the great cause that is now at stake, but that help might be far greater still. From the standpoint both of material and morale, it is only one-half—perhaps less than one-half—of what it might otherwise have been." 117 H.L. Deb., 5 s., col. 217. See also Sir George Dunbar, *India at War* (London, H.M.S.O., 1940).

TABLE 11.—WAR PRODUCTION IN VARIOUS COUNTRIES *

| Country | Real production, in millions of international units (Colin Clark) | | | | Amount per annum spent on war, in millions of dollars (Stacy May) |
|---|---|---|---|---|---|
| | 1929 | 1939 [a] | Percent spent on war | Amount per annum spent on war | |
| Germany (as in 1937) | 19,500 | 26,200 | | | |
| Occupied countries | | | | | |
| Austria | 1,613 | | | | |
| Czechoslovakia | 2,680 | | | | |
| Poland | 3,640 | 3,275 | | | |
| Denmark | 1,008 | | | | 25,000 |
| Norway | 652 | 790 | | | |
| Holland | 2,950 | | | | |
| Belgium | 2,400 | 2,200 | | | |
| France | 13,840 | 12,300 | | | |
| Greece | 900 | | | | |
| Italy | 6,000 | 6,900 | | | 2,000 |
| Estimated total [b] | | 57,600 | 50 | 28,800 | |
| Exports from other European countries [c] | | 1,650 | 30 | 500 | |
| Great Britain | 23,112 | 29,054 | 50 | 18,300 | 15,000 |
| Canada | 6,041 | 7,610 | 25 | 1,900 | |
| Australia | 2,730 | 3,400 | 20 | 680 | |
| New Zealand | 709 | 953 | 20 | 190 | 5,000 |
| South Africa | 900 | | 5 | 45 | |
| India | 22,600 | | 5 | 1,130 | |
| | | | | 22,245 | |
| U.S.S.R. | 14,710 | 24,200 | 50 | 12,100 | |
| United States | 79,000 | 95,400 | 15 | 13,500 | 17,000 |
| Japan | 7,520 | 13,470 | 35 | 4,710 | 3,500 |
| China | 22,700 | | | | |
| Spain | 5,000 | | | 1–2,000 | |

* (Colin Clark), "The Economic Balance of Power," Queensland Bureau of Industry, *Economic News* 10 No. 1: 1; "A Further Note," *ibid.* 10 No. 4: 4 (1941). This author has taken the liberty to make some minor changes of the figures, which must be taken only as rough approximations. Stacy May: *Defense*, June 3, 1941.

[a] Or last available pre-war year.

[b] Including two-thirds of incomes of France, Poland and Greece.

[c] Hungary, Rumania, Yugoslavia, Sweden, Switzerland and unoccupied France. Of the exports of these countries, Germany obtains an estimated 30 percent without giving imports of equal value in return.

coincides with a large volume of unemployment. "Wars seem to emerge with prosperity." [6] This pattern seems to have reasserted itself on the occasion of the outbreak of the present war, when most of the countries of the world were still emerging from the depression low of the early 'thirties. In 1939, there was unemployment in varying degrees in France, Great Britain and the United States. Only Germany had her resources fully employed. She had started to prepare for war as early as 1933 when the Nazi regime rose to power. Unemployed men and resources were absorbed by changing the country into a vast armed camp and placing them in the service of war preparation and warfare.

War offers an outlet for the tremendous productive capacity of the modern industrial system when it suffers from under-employment of men and resources. As long as the war effort does not lead to a complete utilization of existing productive capacity, the additional produce does not consist exclusively of implements of warfare but includes an addition to the volume of goods available for civilian consumption. This secondary, or induced, production is an incidental effect of primary production for war, and is brought about in the following manner. When an increase in production takes place, say in shipbuilding or aircraft, this is accompanied by an increase of employment in various trades and occupations. The newly employed consume more than they did before, having more purchasing power at their disposal than at the time when they were unemployed. The increased profits received by the builders of ships and airplanes also stimulate their consumption, though the latter grows at a much slower rate than that of the newly employed workmen. "With larger incomes being earned in the consumption good industries a further increase takes place, and employment and profits . . . increase still further. Larger incomes again lead to more consumption, and so on round and round." [7] The ratio of the total increase in employment, income or production to the primary increase is known as the multi-

[6] A. L. Macfie, "The Outbreak of War and the Trade Cycle," *Economic History*, Vol. 3, No. 13: 93 (1938).

[7] From Joan Robinson, *Introduction to the Theory of Employment* (New York, The Macmillan Company, 1937), pp. 18–19. By permission of The Macmillan Company, publishers.

plier. If, for example, there is an increase in employment of one man in consumption good industries for every man newly employed in aircraft and shipbuilding, the multiplier is two.

A rough estimate of the multiplier operating under the United States defense program was made public by the Twentieth Century Fund early in 1941. It was stated that the

> multiplier effect of defense spending cannot be estimated with any precision. Its force will depend mainly on the way in which defense expenditures are financed and on the willingness of businesses and individuals to spend their increased incomes. The larger the proportion of defense expenditures financed by credit creation, and the larger the proportion of income spent rather than saved, the greater will be the stimulus to employment. Both of these factors are highly uncertain. . . . It is unlikely that the employment multiplier will be greater than two . . . and it may be considerably less.[8]

On account of various factors, "the dollar-for-dollar value of an armaments program in increasing the national income may well be less than that of a work-relief program." [9] The diversion of large parts of defense expenditures into entrepreneurial and corporate income was bound to stimulate the rate of saving, while the disbursal of work-relief money stimulated the rate of consumption. "First round" leakages were thus more prominent under defense spending than they had been under a work-relief program. "Furthermore, a significant portion of the armaments requirements will be supplied by large monopolistic units which are in a better than average position to obtain very profitable terms, even in the face of preventive legislation and government bargaining." [10]

Before resources and men are fully employed, the real cost of defense production is zero. This is so because the defense effort absorbs men and resources which would otherwise have been idle. Upon the basis of more strict reckoning, it might be held that the effort involves at least some cost since it requires the abandonment

[8] Lloyd G. Reynolds and Associates, *Labor and National Defense* (New York, Twentieth Century Fund, 1941), p. 13.

[9] John Lindeman, "The Armaments Program and National Income," *American Economic Review* 31: 43 (1941).

[10] *Ibid.*, p. 42.

of leisure and the using up of national resources. The leisure which must be sacrificed is, however, of involuntary character, and the increase in secondary production is apt to compensate for the use of the idle resources.

*Diversion of output.*—The duration of the first stage of the defense effort where war output is derived from expanded production depends upon the extent to which resources and manpower were unutilized before. The complete change to the second stage is preceded by intermediary stages of segmentary full employment. It then becomes necessary to avert shortages of essential materials in these segments by restraining civilian consumption and reserving facilities and materials for war production. "Bottlenecks" of this type are few in number at first. In the course of time the specific bottlenecks disappear and scarcity permeates all branches of the economy. Bottlenecks and scarcity can be postponed or avoided if production and expansion of productive capacity in specific lines is not restricted by monopolistic practices of the industries concerned. Their unfavorable effects upon the progress of defense can be allayed by careful planning designed to achieve a synchronization of the flow of products entering into defense production. The specific techniques which are employed to cope with these situations are discussed in Chapter 7.

The extent of the conversion is limited by the success of these techniques and the degree to which civilian consumption can be restricted.

A special type of conversion is represented by the conversion of civilian production to production for export with the view of using the claims for the payment of the exports to pay for war-essential imports. There are similar effects upon civilian consumption when there is no change in volume or composition of exports but proceeds are used to pay for the importation of war materials instead of for civilian consumers goods or producers goods going into civilian channels. Until British export policies were fundamentally changed in 1941,[11] both types of conversion were of great importance in England.

*Depletion of the stock of accumulated wealth.*—Expansion and

[11] See below, pp. 304f.

conversion of production are means to utilize current production, or national income, for the war effort. There is, however, another source from which the material requisites of the war effort can be derived. Within certain limits, it is possible to deplete the stock of accumulated wealth and, thus, supplement current production. The liquidation of existing assets may assume manifold forms. Resources may be directly placed in the service of war by depleting inventories or by a destructive utilization of natural resources. Implements of war may be purchased from foreign countries against means of payment resulting from draining foreign investments and gold reserves. Or the stock of accumulated wealth may deteriorate if productive efforts are set free which were used for its replacement and maintenance.

The liquidation of existing assets proceeded in a different manner in England and Germany. While England had at her disposal a large volume of foreign investments and other funds and of gold stocks, which subsequently were exposed to a considerable drain, Germany used up her inventories and neglected maintenance and repair works. It is estimated that about 10,000,000,000 marks per year, or 15 percent of the annual expenditures of the Reich, are represented by these contributions of the stock of national wealth, with one-half taken from inventories and the other resulting from the neglect of maintenance and repair works.[12] For obvious reasons, this policy, which seriously affects industrial efficiency, cannot be continued over a great length of time, and the liquidation of inventories cannot be repeated at all.

To the extent to which existing assets are liquidated, the sum of resources devoted to private and war consumption exceeds the national income. In England the value of disinvestment rose from 8 percent of the net national income during the first quarter of 1940 to 30 percent during the fourth quarter. Correspondingly, total resources currently used for war and private consumption were 8 and 30 percent, respectively, in excess of the national income.[13]

[12] *Neue Zürcher Zeitung*, May 16, 1941; New York *Times*, October 22, 1941.

[13] *An Analysis of the Sources of War Finance and an Estimate of the National Income and Expenditure in 1938 and 1940*, Cmd. 6261 (London, H.M.S.O., 1941), p. 15.

*Summary*.—The sources of the war output can thus be summarized as follows:

1. National income, or current production:
   a. Additional income, or expansion of production;
   b. Conversion of production.
2. National wealth, or accumulated instruments of production:
   a. Depletion of inventories;
   b. Destructive utilization of natural resources;
   c. Utilization of foreign investments;
   d. Utilization of gold reserves;
   e. Cessation of replacement and maintenance allowances.

## Quantitative Appraisal of the Elements of War Production

*National income*.—The national income comprises the flow of goods and services produced during one year. Since there is no common denominator to express the volume of this flow, it must be measured in terms of dollars. The resulting figure indicates the dollar value of the annual output and is no true indicator of its volume since the value of the dollar is subject to variations.

TABLE 12.—NATIONAL INCOME PRODUCED, AND INDEX NUMBERS OF WHOLESALE PRICES (U.S. BUREAU OF LABOR STATISTICS, 1926 = 100), UNITED STATES, 1929–40 *

| | *National income, millions of dollars* | *Wholesale prices* | | *National income, millions of dollars* | *Wholesale prices* |
|---|---|---|---|---|---|
| 1929 | 82,885 | 95.3 | 1935 | 55,870 | 80.0 |
| 1930 | 68,904 | 86.4 | 1936 | 65,165 | 80.8 |
| 1931 | 54,310 | 73.0 | 1937 | 71,172 | 86.3 |
| 1932 | 40,074 | 64.8 | 1938 | 63,610 | 78.6 |
| 1933 | 42,430 | 65.9 | 1939 | 69,378 | 77.1 |
| 1934 | 50,347 | 74.9 | 1940 | 76,000 | 78.6 |

* *Survey of Current Business*, 1938 Supplement, p. 12; Vol. 20, No. 6: 7; Vol. 21, No. 6: 11 (1940, 1941); U.S. Bureau of Labor Statistics, *Serial* No. R 1069: 2 (1940); *Monthly Labor Review* 52: 478 (1941).

The national income during the period from 1929 to 1940 is shown in the preceding table. Income estimates for 1941 are in the neighborhood of $92,000,000,000. In terms of physical volume of goods and services produced, the 1940 income represented an all-time high. It likewise exceeded the previous high of 1929 on a per capita-basis. The comparison of the physical magnitudes is facilitated by the index of wholesale prices. However, it is well to remember that the real income of 1940 comprised a large amount of munitions and implements of warfare which represented a much smaller portion of the 1929 income. The wholesale price index continued to rise in 1941 and was 94 in December of that year.

Stimulated by the defense program, the national income is expected to continue to grow. Whether this will reflect an increase in real national income depends upon the degree to which America's capacity to produce goods and services is expanded by longer working-hours. Previous experience indicates that an income exceeding $100,000,000,000 (at present prices) cannot well be expected in the near future.

The best practical test we ever had of what is involved in speeding up our productive plant to full capacity indicates forcibly that even a 15 percent gain is a heroic achievement. This test came in 1918 in the effort to mobilize the nation's resources to the maximum degree for the prosecution of the World War. In that undertaking we had every inducement of patriotism, the full force of social pressures, unstinted prices, and a not inconsiderable measure of actual coercion in the drafting of men and the regimentation of private business. As against these abnormally stimulative conditions there was some loss of productivity in the diversion of effort away from the production of the types of goods and services to which we had been accustomed and to the production of those most needed for the prosecution of the war. There was also some loss of efficiency as a result of the haste with which the stepping up was undertaken. . . .

In order to measure that achievement we shall class the men in the military establishment as productive at the same rate as those in the civil establishment. . . . We find the volume of production in manufacturing, mining, and agriculture . . . running at its best about 8 percent above the computed normal trend. . . . If to this we add our allowance of 7 percent for the services of those who were making

war instead of economic well-being, we have a total of 15 percent of expansion.[14]

The great difference between the situation during the World War of 1914–18 and that in 1939 must be attributed to the low degree at which America's capacity to produce was utilized in 1939.

*Industrial production.*—The following table illustrates the rise in industrial production, manufacturing and mining. Total industrial production in 1940 was larger than during any previous year of our industrial history. In summer, 1941, it doubled that of the World War of 1914–18, and arrived at 166 percent of the 1935–39 average in December, 1941.

TABLE 13.—INDEX NUMBERS OF INDUSTRIAL PRODUCTION, UNITED STATES, 1929–40 (1935–39 = 100) *

| | *Industrial production* | | | | |
|---|---|---|---|---|---|
| | *Total* | *Manufactures* | | | *Minerals* |
| | | *Total* | *Durable* | *Non-durable* | |
| 1929 | 110 | 110 | 133 | 93 | 107 |
| 1930 | 91 | 91 | 99 | 84 | 93 |
| 1931 | 75 | 74 | 68 | 79 | 80 |
| 1932 | 58 | 57 | 41 | 70 | 66 |
| 1933 | 69 | 68 | 54 | 79 | 76 |
| 1934 | 75 | 74 | 66 | 81 | 80 |
| 1935 | 87 | 87 | 84 | 90 | 86 |
| 1936 | 103 | 104 | 108 | 100 | 99 |
| 1937 | 113 | 113 | 122 | 106 | 112 |
| 1938 | 88 | 87 | 78 | 95 | 97 |
| 1939 | 108 | 108 | 108 | 108 | 106 |
| 1940 | 122 | 123 | 135 | 113 | 117 |

* *Federal Reserve Bulletin*, August, 1940, p. 764; March, 1941, pp. 243, 246.

The increase in industrial production indicated in Table 13 reflects corresponding increases in the production of the sub-groups of which the index is made up. The following table shows the variations in the

[14] Edwin G. Nourse and Associates, *America's Capacity to Produce* (Washington, The Brookings Institution, 1934), pp. 425–27.

rate of growth of these groups. Figures in parentheses indicate the weight given to the index of the sub-group in making up the composite index.

TABLE 14.—PERCENT INCREASE IN THE PHYSICAL VOLUME OF INDUSTRIAL PRODUCTION, BY INDUSTRIAL SUB-GROUPS, MAY 1940 TO MAY 1941 *

| | | | |
|---|---|---|---|
| Machinery (11) | 66 | Stone, clay, etc. (3) | 19 |
| Trans. equipment (6) | 65 | Lumber (5) | 18 |
| Textiles (11) | 57 | Mfg. foods (13) | 11 |
| Non-fer. metals (3) | 50 | Petrol. products (2) | 8 |
| Iron and steel (11) | 41 | Mining (15) | 8 |
| Leather (2) | 35 | Tobacco (1) | 7 |
| Rubber (1) | 31 | Paper and printing (10) | 6 |
| Chemicals (6) | 20 | | |

* *Federal Reserve Bulletin*. Adapted from Cleveland Trust Company, *Business Bulletin*, July 15, 1941. The original 18 groups of the Federal Reserve index have been consolidated into 15.

On the basis of monthly output, the defense effort during the first year starting in May, 1940, led to the following increases in production: production of airplanes trebled; that of tanks increased by 600 percent; small arms ammunition increased by 1,200 percent; Garand rifles by 360 percent; .30-calibre machine guns trebled; .50-calibre machine guns quadrupled.[15] For the subsequent years a great acceleration of the rate of increase was anticipated. In absolute figures, plane production rose from 561 in July, 1940, to 1,854 in August, 1941.

By December 15, 1941, total authorizations and appropriations for expenditures during the two fiscal years starting July 1, 1940 and British orders were in excess of $74,000,000,000. This was allocated as follows: for airplanes, $13,196,000,000; for naval vessels and merchant ships, $12,169,000,000; for ordnance, $16,605,000,000; for industrial facilities, $8,163,000,000; for posts, depots, and other non-industrial construction, $6,523,000,000; for other equipment, $5,622,000,000; for miscellaneous items, including lend-lease, $11,862,000,000.[16]

[15] Office for Emergency Management, *Defense—One Year* (Washington, Government Printing Office, 1941), p. 29.

[16] *Defense*, December 30, 1941.

Some instructive compilations indicating the types of industry which were most intensely affected by the defense program have been prepared by the New York *Times*. These calculations, which are reproduced in the following table, indicate the defense contracts (excluding plant construction) of various leading concerns and the percentage of total sales in 1939 represented by these contracts. Since the calculations were prepared at different times, there are some variations in the period covered by defense awards. While this period started in all cases on June 13, 1940, its termination varied from February 15 to May 31, 1941. In spite of this flaw the comparison is not without interest since it illustrates the great variations of defense orders, and their significance relative to sales during a time when business was "as usual." The greatest expansion, approaching 10,000 percent of 1939 sales, was in the aviation industry. While the defense awards to other industries were considerable in terms of dollars, there was no comparable expansion in terms of 1939 sales. These were on such gigantic scale in numerous cases, particularly in the steel industry, that large defense orders absorbed only a small percentage of 1939 sales. The case of Bethlehem Steel, which seems to be different, fits into the general pattern, since the bulk of the defense contracts awarded to this concern was for navy vessels.

Aircraft production, the foremost defense need, was to be placed upon mass-production basis. French aviation, though it had been outstanding in quality production, had failed in this difficult task. With respect to the magnitude and complex character of the technical work involved, aircraft production has been said to occupy a place between automobile production and watchmaking. The high obsolescence rate of aircraft adds to the difficulties.

German productive capacity has been estimated by various observers as 1,800 to 3,000 planes a month. There are no detailed estimates of British and Russian production available. The British output may be in the neighborhood of 2,000 planes a month, probably twice as many as Japan has facilities to produce. It was reported that British production had been seriously retarded under the Chamberlain government, which had held back the industrial effort of the Empire in order to prevent competition with Britain during the post-

TABLE 15.—VALUE OF DEFENSE CONTRACTS AND RATIO TO 1939 SALES, LEADING CONCERNS, FOR PERIOD STARTING JUNE 13, 1940 *

| Concern | Defense contracts awarded | |
|---|---|---|
| | Millions of dollars | Percent of 1939 sales |
| Consolidated Aircraft [i] | 359.2 | 9968 |
| Los Angeles S.B. & D.D. [g] | 81.8 | 8673 |
| Republican Aviation [c] | 57.3 | 6209 |
| Vultee Aircraft [c] | 36.8 | 1484 |
| Douglas Aircraft [i] | 412.2 | 1479 |
| Boeing Airplane [g] | 168.0 | 1418 |
| Todd Shipyards [f] | 225.0 | 1291 |
| Fairchild En. & Air. [j] | 13.8 | 1026 |
| Curtiss Wright [i] | 429.3 | 883 |
| Wellman Engineering [f] | 7.0 | 649 |
| Continental Motors [i] | 44.7 | 616 |
| Sperry [f] | 66.2 | 597 |
| United Aircraft [h] | 201.5 | 394 |
| Bethlehem Steel [j] | 1,139.8 | 275 |
| Harrisburg Steel [i] | 6.2 | 234 |
| General Cable [g] | 8.1 | 209 |
| Cooper-Bessemer [f] | 7.7 | 186 |
| Baldwin Loco-Midvale [i] | 58.3 | 185 |
| Willys-Overland Motors [i] | 15.9 | 172 |
| Bendix Aviation [f] | 70.2 | 168 |
| Consol. Machine Tool [f] | 3.4 | 137 |
| Fairbanks, Morse [d] | 29.5 | 120 |
| Hercules Powder [h] | 47.3 | 116 |
| Mesta Machine [f] | 16.7 | 114 |
| American Woolen [i] | 69.3 | 107 |
| Fuller (G.A.) [e] | 21.7 | 106 |
| Botany Worsted Mills [f] | 15.3 | 96 |
| Struthers-Wells-Titusville [d] | 2.8 | 78 |
| Scoville Manufacturing [d] | 19.3 | 56 |
| Bridgeport Brass [j] | 9.3 | 47 |
| U.S. Steel [j] | 397.1 | 44 |
| Mt. Vernon-Woodberry Mills [j] | 4.0 | 43 |
| Studebaker [e] | 35.0 | 43 |
| Fruehauf Trailer [a] | 6.2 | 42 |
| Lukens Steel [e] | 4.3 | 36 |
| Smith (A.O.) [i] | 6.8 | 33 |
| Revere Cop. & Brass [j] | 12.6 | 30 |
| Stewart-Warner [i] | 7.2 | 28 |
| General Electric [g] | 79.3 | 26 |
| General Motors [j] | 309.2 | 23 |
| Reynolds Metal [e] | 4.3 | 21 |
| Crucible Steel [h] | 9.4 | 20 |
| Budd Mfg. [b] | 5.7 | 17 |
| Pacific Mills [f] | 7.1 | 15 |
| Chrysler [e] | 74.4 | 14 |
| Phelps-Dodge [f] | 6.6 | 9 |
| Internat. Bus. Mach. [c] | 3.2 | 8 |
| Nash Celvinator [f] | 5.4 | 8 |
| Anaconda Copper [d] | 10.8 | 6 |
| Electric Auto-Lite [j] | 3.3 | 6 |
| Richfield Oil [j] | 2.2 | 5 |
| Standard Oil of Calif. [j] | 7.4 | 4 |
| International Harvester [e] | 7.8 | 4 |
| Shell Union Oil [j] | 4.4 | 3 |
| U.S. Rubber [b] | 4.7 | 2 |
| International Nickel [b] | 2.7 | 2 |
| Tide Water Ass. Oil [j] | 2.4 | 2 |
| Standard Oil N.J. [i] | 11.6 | 1 |
| Youngstown Sheet & Tube [c] | 1.1 | 1 |

* New York *Times*, February 24; March 15; April 4, 10, 17, 24; May 8, 15, 29; June 7, 1941.

[a] Awards for period ending February 15, 1941.
[b] " " " " March 8, 1941.
[c] " " " " March 31, 1941.
[d] " " " " April 7, 1941.
[e] " " " " April 14, 1941.
[f] " " " " April 19, 1941.
[g] " " " " May 3, 1941.
[h] " " " " May 10, 1941.
[i] " " " " May 24, 1941.
[j] " " " " May 31, 1941.

war period.[17] Military aircraft production in the United States was expected to attain an annual rate of 60,000 in 1942,[17a] an increase of 31,000 over the rate prevailing in summer, 1941. Until that time the proportion of training planes had been abnormally high, amounting to approximately one-half of monthly production. Aircraft production, when at the annual rate of 50,000 planes, will absorb a direct labor force of 800,000 workers and 90,000,000 square feet of floor space.[18]

In the field of durable producers goods the first "bottleneck" arose in the machine-tool industry. Under the impact of the defense program the demand for machine tools had been stimulated greatly. Most types of machine tools were usually made to order, and the time required for production varied from four months to two years. The value of production, which averaged $30,000,000 in 1931–34, increased to $200,000,000 in 1939, $430,000,000 in 1940, and was expected to exceed $750,000,000 in 1941.[19] To cope with the anticipated slack in demand after the conclusion of the defense effort, designers concentrated their efforts upon cost and labor-saving models to replace factory tools used for normal industrial processes. The use of machine tools in defense industries averaged 10 hours a day in June, 1941. It was expected that this figure would increase to 15 hours within the subsequent four months. It seemed impossible to attain the practical maximum use of 20 hours a day, since some machine tools often had to stand idle while others caught up.[20]

*Durable goods.*—It is particularly the production of durable goods which must be converted to military production once expansion of production is no longer feasible. The conversion proceeds gradually since not all shortages emerge at the same time. Specific types of pro-

[17] Kurt Lachmann, "War and Peace Economics of Aviation," *Social Research* 7: 472 (1941).

[17a] Message of the President on the State of the Union, January 6, 1942.

[18] T. P. Wright, *Aircraft Production and National Defense* (America in a World at War Series, No. 10, New York, Farrar and Rinehart, 1941), pp. 13, 15.

[19] Release of the National Machine Tool Builders Association, April 23, 1941.

[20] Testimony of Robert L. Mehornay of OPM before the Special Senate Committee Investigating the National Defense Program, 77th Cong., 1st Sess., *Hearings*, June 10, 1941.

ductive agents and facilities must be converted at an earlier time or to a larger extent than others. Proper timing is necessary to attain the greatest possible speed in the execution of the defense effort. Consumers are subjected to the least necessary sacrifice if conversion is supplemented by an expansion of productive facilities. From a long-term point of view, the expansion of productive capacities is the best guarantee of an enduring defense effort and the most effective means to prevent excessive inflation. Expansion of productive capacities, in order not to disturb other segments of the economy and the defense effort through the absorption of labor and materials, must start at the earliest possible time, before all-around shortages become apparent. Resistance of monopolistic producers must not be allowed to interfere with this important objective.

Estimates of the extent and the types of the production of new durable goods in 1940 are indicated in Table 16, p. 92. These estimates exclude naval vessels and special military equipment generally; they include (under public construction) outlays for military posts, yards, docks and hangars, for defense housing, and for publicly-owned productive plant. The estimates do not include expenditures for repairs and maintenance. There was disbursed in 1937 an amount of $10,000,000,000 over and in excess of the net national income designed to maintain and replace the accumulated stock of durable goods.[21] A part of the productive energy normally applied to the maintenance of the national wealth can be converted to defense production. However, in appraising the conversion potential account must be taken of the fact that the impact of the Great Depression upon the maintenance and replacement of certain types of durable goods was especially severe. Production of durable producers goods and of some durable consumers goods declined much more than the production of non-durable goods. While it is not possible to take up the slack in residential building during the defense emergency, the conversion potential is limited in cases where resources must be used to terminate the state of unusual obsolescence

[21] Investigation of Concentration of Economic Power. *Hearings* before the Temporary National Economic Committee, 76th Cong., 1st Sess., Part 9 (Washington, 1940), p. 4007.

TABLE 16.—ESTIMATED EXPENDITURES FOR NEW DURABLE GOODS, UNITED STATES, 1940, IN MILLIONS OF DOLLARS [a] *

| | *Total* | *Plant* | *Equipment* |
|---|---|---|---|
| A. Durable producers goods | | | |
| Railroads | 450 | 170 | 280 |
| Electric power | 485 | 210 | 275 |
| Telephones | 400 | 117 | 283 |
| Transit | 114 | 51 | 63 |
| Other utilities | 150 | 100 | 50 |
| Mining and manufacturing | 3,375 | 975 | 2,300 |
| Agriculture | 865 | 250 | 615 |
| Commercial and miscellaneous | 2,045 | 445 | 1,700 |
| Total | 7,884 | 2,318 | 5,566 |
| B. Durable consumers goods | | | |
| Housing | 2,385 | 2,385 | — |
| Building for non-profit institutions | 250 | 250 | — |
| Passenger cars | 2,950 | — | 2,950 |
| Household goods | 5,300 | — | 5,300 |
| Total | 10,885 | 2,635 | 8,250 |
| Total private | 18,769 | 4,953 | 13,816 |
| C. Public construction [b] | 3,354 | 3,354 | — |
| Grand total | 22,123 | 8,307 | 13,816 |

* George Terborgh, "Durable Goods Expenditures in 1940," *Federal Reserve Bulletin*, February, 1941, p. 103.

[a] All figures are preliminary. Durable goods are goods which have a normal useful life in excess of three years.

[b] Includes work-relief construction.

of essential manufacturing plant. Some examples of such obsolescence are presented in Table 17, p. 93.

As is well-known, the decline in housing during the 'thirties was very considerable. The average volume of new construction, excluding work relief, during 1933–38 was only 36 percent of the average volume during 1925–29.[22] However, as mentioned before, it is im-

[22] J. K. Galbraith, *The Economic Effects of the Federal Public Works Expenditures 1933–38* (Washington, National Resources Planning Board, Government Printing Office, 1940), p. 33.

TABLE 17.—APPROXIMATE PERCENTAGE OF EXISTING STOCK OF SPECIFIED DURABLE GOODS UNDER 10 YEARS OF AGE, 1930, 1940 *

| | 1930 | 1940 |
|---|---|---|
| Housing units (non-farm) | 28 | 8 |
| Railroad locomotives | 20 | 6 |
| Railroad freight cars | 34 | 14 |
| Electric generating capacity [a] | 65 | 25 |
| Metal working machinery | 52 | 30 |

* George Terborgh, "Present Position of Durable Goods Inventory," *Federal Reserve Bulletin*, October, 1940, p. 1042.

[a] Privately owned.

possible to take up this slack in a war economy where manpower and materials are required for more essential uses. Such housing as can (and must) be stimulated during the emergency is limited to facilities for the short-run to provide living quarters for workers concentrated in the centers of defense activities and newly created boom-towns. After the conclusion of the defense effort resources will be available for a comprehensive housing program designed to meet long-term requirements.[23]

It is interesting to note the extent to which the production of durable consumers goods was stimulated during the first, intermediate stage of the defense effort when capacities were not fully employed and the operation of the multiplier led to an expansion of "secondary production." The increase is illustrated in Table 18, p. 94.

Compared with durable goods, the income elasticity of demand for non-durable consumers goods is much lower. From September, 1939 to March, 1941, consumers' expenditures for durable goods increased by about 40 percent, expenditures for non-durable goods only by about 10 percent.[24] Production of durable consumers goods during

[23] According to an announcement of the Supply Priorities and Allocations Board of October 9, 1941, no new public or private construction projects which use critical materials such as steel, copper, brass, bronze, aluminum, etc., may be started during the emergency unless these projects are either necessary for direct national defense or are essential to the health and safety of the people. *Defense*, October 14, 1941. The value of new building was expected to decline from $11,200,000,000 in 1941 to $8,500,000,000 in 1942. In 1940, it had been $6,850,000,000.

[24] *Survey of Current Business*, Vol. 21, June, 1941, p. 5.

TABLE 18.—ESTIMATED EXPENDITURES FOR DURABLE CONSUMERS GOODS, 1938–40, IN MILLIONS OF DOLLARS *

| | 1938 | 1939 | 1940 |
|---|---|---|---|
| Housing | 1,618 | 2,095 | 2,385 |
| Building for non-profit institutions | 199 | 225 | 250 |
| Passenger cars | 1,613 | 2,275 | 2,950 |
| Household goods | 4,200 | 4,700 | 5,300 |
| Total | 7,630 | 9,295 | 10,885 |

* George Terborgh, "Estimated Expenditures for New Durable Goods, 1919–38," *Federal Reserve Bulletin*, September, 1939, p. 733; *idem*, "Durable Goods Expenditures in 1940," *ibid.*, February, 1941, p. 103; *idem*, "Durable Goods Expenditures in 1939," *ibid.*, February, 1940, p. 116.

the first nine months of 1941 was in excess of the entire output in 1940.[25] During the first six months of 1941 consumers' expenditures for certain types of durable goods reached record figures. Estimates of sales for the first six months of 1941 by manufacturers were in excess of the 1940 figures by the following percentages: stokers, 80 percent; furniture, 50 percent; electric ranges, 48 percent; automobiles, 40 percent; residential building, 34 percent; electric refrigerators, 33 percent; oil burners, 28 percent; vacuum cleaners, 22 percent; radios, 20 percent. In the washer and ironer field, the publication of monthly sales figures by the trade association was discontinued for fear the industry might be regarded as unpatriotic if reports indicating a large consumption of vital material for non-essential purposes were made public.[26] It was indeed obvious that record outputs like the ones mentioned could not well be maintained under the impact of rising shortages of material and skilled labor for defense production.

Intelligent planning for defense and efficient conversion policies require an accurate and coördinated inventory of civilian and military needs. It was not before September, 1941, that the newly created

[25] New York *Times*, September 28, 1941.

[26] New York *Times*, July 6, 1941. For a detailed study of the impact of the defense program upon retail sales in the different geographic regions and localities, cf. "National Defense and the Corner Store," *Dun's Review*, March, 1941, p. 7; "Defense Dollars and Consumer Markets," *ibid.*, June, 1941, pp. 3ff.

Supply Priorities and Allocations Board sponsored the compilation of material to set up full schedules of military and civilian requirements as far in advance as possible. These schedules were to be broken down into schedules of raw materials, labor, and machinery. At that time, no attempt had been made to supplement these schedules by an over-all inventory of the country's capacity to produce at different levels of working-hours. There was, of course, detailed knowledge available about the productive capacity in specific lines of industry and about such expansion of productive capacities as had been provided for.

During the World War of 1914–18 American industry had adapted itself to a large-scale conversion program.

> Automobile plants were turned to making airplanes, "Eagle" boats, and tanks. . . . Parts for . . . motors were made by vacuum-cleaner plants and many others. Piano-makers made airplane wings; printing-machine makers turned to making fuses, and computing-machine makers to assembling them. Makers of carpets made blankets and duck; makers of refrigerators made field hospital tables; makers of horseshoes made trench picks; makers of toys made packing boxes; makers of radiators made big guns; makers of bottle-caps made machine-gun mounts. Makers of fish rods found their war-opportunity in flagstaffs, portable wireless masts, and other varieties of jointed poles; makers of stoves, in grenades and trench bombs; makers of corsets, in medical corps belts and fencing masks; makers of gears, in gunsights; makers of rubber and canvas, in gasmasks; makers of ladies' waists, in signal flags. Even makers of pipe organs found their niche.[27]

A start was made with conversion in 1940 when "educational orders for fuse bombs were distributed to screw manufacturers and to makers of storage batteries and business machines; parachute flares to makers of fireworks; automatic pistols to makers of sewing machines; telescopes to linotype manufacturers; gas masks to tire manufacturers and makers of surgical supplies." [28] In 1941 the conversion campaign continued on an enlarged scale and at an accelerated rate

[27] John M. Clark, *The Costs of the World War to the American People* (New Haven, Yale University Press, 1931), p. 42.

[28] M. R. Gainsbrugh, *Manufacturing Resources for Defense*, Studies in the Economics of National Defense No. 7 (New York, National Industrial Conference Board, 1940), p. 6.

of speed. It affected such different industries as washing machines, refrigerators, home heating appliances, bath-tubs and beauty and barber shop equipment. Most important was the fact that the priorities administration had drained many manufacturers of civilian consumers goods of materials required for defense production and thus forced them into conversion lest they would have to close down their plants. According to estimates of the Office of Production Management of July, 1941, facilities and materials were sufficient to supply only the following percentages of civilian requirements: steel, 90; power, 90; rubber, 70; plastics, 67; alloy steels, 50; nickel, 50; copper, 40; aluminum, 7.[29]

Special problems arose for such industries which were not prepared for conversion. In the fall of 1941, "priorities unemployment," as it came to be called, was said to face as many as 2,000,000 workers. To a large extent this situation was attributed to the great restraint with which the possibilities of spreading defense work among smaller producers and sub-contractors had been approached. A vigorous program of dispersion of defense production was not undertaken until the fall of 1941.[30] The need for severe restrictions of employment and production in durable consumers goods industries was also attributed to the deplorable shortsightedness which had defeated those patriots who, early in 1941 and late in 1940, had urged a larger expansion of facilities to produce steel, aluminum and other commodities.[31]

Attempts were made to overcome shortages of materials for civilian consumption by means of standardization and substitute products. Substitution is discussed more fully in Chapter 8, below.

*Conversion of the automobile industry.*—Conversion of the automobile industry was of particular importance since this industry absorbed enormous amounts of essential materials and was composed of facilities which could be made useful for defense production. The

[29] "Shortages," *Dun's Review*, August, 1941, p. 37.

[30] See below, p. 206.

[31] See testimony of Leon Henderson before the House Committee on Banking and Currency; 77th Cong., 1st Sess., *Hearings* on Emergency Price Control Act of 1941, August 8, 1941.

1940 automobile production was estimated to have absorbed the following materials: [82]

| | |
|---|---|
| Steel, net tons | 7,185,000 |
| Malleable iron, tons | 342,500 |
| Gray iron, tons | 1,136,500 |
| Crude rubber, long tons | 567,500 |
| Plate glass, square feet | 141,150,000 |
| Upholstery leather, square feet | 32,465,000 |
| Aluminum, tons | 25,000 |
| Copper, tons | 132,000 |
| Tin, tons | 12,000 |
| Lead, tons | 273,500 |
| Zinc, tons | 91,000 |
| Nickel, pounds | 23,980,000 |
| Cotton, bales | 880,000 |
| H'dwood lumber, cord feet | 209,825,000 |
| Softwood, cord feet | 124,700,000 |
| Glycerine, pounds | 21,820,000 |
| Upholstery cloth, yards | 54,100,000. |

The automobile industry was described as "the nation's biggest customer of strip steel, bars, steel sheets, malleable iron, alloy steel, all types of steel, rubber, nickel, lead and plate glass. The industry used 49 percent of the country's strip-steel production, 33 percent of the steel bars, 44 percent of the steel sheets, 51 percent of the malleable iron and 55 percent of all alloy steel." [83] Perhaps of even greater importance was the fact that it represented a reservoir of large numbers of skilled, semi-skilled and unskilled labor which could be made available for defense work.

Patriotic men had urged the conversion of the automobile industry as early as 1940. In December of that year, Mr. Walter P. Reuther, director of the General Motors Department of the United Automobile Workers of America, made public detailed proposals to produce 500 airplanes a day by converting the entire unused capacity of the automobile industry into a unit for the mass production of aircraft.

[82] New York *Times*, April 18, 1941. Estimates were for 20 percent and have been multiplied by five by the author.

[83] *Ibid.*

The plan was not regarded as practicable by the spokesmen of the aviation industry. It was pointed out that mass production methods could not be applied in aircraft production since aircraft types were not standardized. Including the models built for England, about fifty different types of airplanes were said to be in the process of production early in 1941. Mr. Reuther replied to these objections by supplying an impressive list of machinery, newly installed in aircraft plants, which duplicated existing unused automobile plant machinery. He pointed out that less than 10 percent of the available facilities of the automobile industry had been brought into play for defense production.[34]

During the first half of 1941, the automobile industry's contribution to the defense effort had indeed been limited, in the main, to the production of parts and subassemblies for airplanes. The industry had accepted many large war contracts, which, however, could be filled only after new plants had been built, while vital existing plants continued to produce automobiles. Automobile production was not only maintained but allowed to reach an all-time high during the first six months of 1941. The situation was characterized by Mr. Stacy May, chief of the bureau of research and statistics of OPM, as follows: It is "scandalous for the automobile industry to be putting out 5,200,000 units this year, when our Army and Navy inventories are short, and when England, to survive, vitally needs materials from us which we may not be able to get to her in time." [35]

The development of automobile production in the United States is indicated in Table 19, p. 99.

It was not before the late fall of 1941 that automobile production was curtailed. An anticipated curtailment of 20 percent, to take effect during the fall, was announced in April, 1941. This measure would have maintained production on about the same level it had attained in 1940. In June, 1941, the War Department requested OPM to cut

[34] See letters of Mr. Reuther and Mr. John H. Jouett, president of the Aeronautical Chamber of Commerce of America, New York *Times*, January 23, 27, 1941. Mr. Reuther's original proposal was later reprinted under the title *500 Planes a Day* (Washington, American Council on Public Affairs, 1941).

[35] Address before the Society for the Advancement of Management, Washington, May 23, 1941.

TABLE 19.—FACTORY SALES OF AUTOMOBILES MANUFACTURED IN THE UNITED STATES, 1929, 1937–41 *

| | *Passenger cars and trucks* | *Passenger cars only* |
|---|---|---|
| 1929 | 5,621,000 | 4,791,000 |
| 1937 | 5,016,000 | 4,069,000 |
| 1938 | 2,655,000 | 2,125,000 |
| 1939 | 3,733,000 | 2,975,000 |
| 1940 | 4,469,000 | 3,692,000 |
| 1941, Jan.–June | 2,996,000 | 2,428,000 |

* *Statistical Abstract for the United States, 1940* (Washington, Government Printing Office, 1941), p. 417; *Survey of Current Business*, February, 1941, p. 101; *Commercial and Financial Chronicle*, August 9, 1941, p. 754.

automobile production by as much as 50 percent. The remainder would have been equal to total production in 1938. When the Office of Price Administration and Civilian Supply tentatively provided for a curtailment of this extent, with a cushioning period to minimize transitional unemployment, this was first opposed by OPM and the automobile interests but was finally put into effect. It was estimated that this measure would lead to the saving of an annual 4,250,000 tons of steel and substantial amounts of nickel, copper, tin, zinc, aluminum, chromium and lead.[36] The curtailment of automobile production was speeded up further under the influence of the outbreak of the war in December, 1941, and a total stoppage of production was scheduled for February, 1942.

*Transportation problems.*—The defense program was bound to expose the transportation facilities of the United States to considerable strain. Shortages appeared first in coastwise shipping transportation under the influence of the diversion of shipping facilities to Britain.[37] Highway transportation by truck and trailer was in a condition of overload in the summer of 1941, when the volume of revenue freight reached an all-time high. Large interstate systems were then reported as rejecting more than 100 truckloads a day and leaving the business to the smaller firms. In July of the same year a cen-

[36] New York *Times*, July 20, 1941.
[37] See below, p. 234.

tral committee on motor carrier transportation was created, with regional subcommittees, to ascertain suitable methods for the adequate utilization of trucking space. Plans were prepared for pools of operators on a zone basis, with central offices allocating hauling space upon a priority basis.[38]

Though a decentralization of defense production might enhance the significance of highway transportation, the bulk of the heavy traffic was still to be borne by the railroads. To meet the increased requirements, the railroads adopted various devices to utilize the available facilities to a fuller extent. Normally, freight cars were moving only about two and one-half hours out of twenty-four. By increasing the time of actual movement, greater service was obtained from the existing rolling stock. This was facilitated by speeding up loading operations in terminals and by preventing the use of freight cars for storage purposes. This misuse had greatly impeded the flow of traffic during the World War of 1914–18, and had, in conjunction with other railroad "bottlenecks," contributed to the decision of the government to take over the railroads and operate them as one system.

Orders for a sizable expansion of the number of freight cars were postponed until shortages of materials made their fulfillment difficult. In February, 1941, Mr. Ralph Budd, president of the Chicago, Burlington & Quincy Railroad, who had been appointed commissioner of the Transportation Division of the Advisory Commission to the Council of National Defense, had expressed his opinion that "the increased traffic, as indicated by the forecasts for 1941 and 1942, can be handled without congestion or delay." [39] In April of the same year it was stated that "no great effort has been made to increase the existing transportation facilities generally." [40] In subsequent months, when the volume of freight car orders increased, construction work was impeded by the then arising shortage of steel. While original plans had provided only for an increase in the number of freight cars available for use from 1,645,386 on June 1, 1940, to a total of

[38] *Defense*, July 1, 1941.
[39] Address at Chicago, February 24, 1941. *Defense*, March 11, 1941.
[40] Office for Emergency Management, *Functions and Purposes* (Washington, Government Printing Office, 1941), p. 54.

1,700,000, the construction program was stepped up time and again, and, in the fall of 1941, provided for the building of 330,000 new cars during the subsequent two years. It was expected that the expansion, which was originally financed by the sale of equipment-trust certificates, would require the financial support of the Reconstruction Finance Corporation, which might lease the newly constructed cars to the railroads. It was also expected that the construction program would be developed as joint enterprise of the various companies, a procedure which would facilitate the setting up of standard specifications and the purchase of cars in large lots.

The production of new passenger cars was severely curtailed in view of the shortage of steel.[41] In the late summer of 1941, the movement of troops and the increased passenger traffic necessitated the elimination of lightly patronized services and other reductions. When furloughs revealed shortages of cars in the East, holiday and other excursions were discontinued. In August, 1941, when the restriction of gasoline sales led to a diversion of travel to the railroads, the Pennsylvania Railroad suspended eight passenger trains.

## The Consumer in the War Economy

Mr. Jerome Frank, then Chairman of the Securities and Exchange Commission, has expressed the opinion that the United States can set free for armament production up to $20,000,000,000 annually "without serious hardship or impairment of the efficiency of the factors of production. . . . It is probably only in the case that armament expenditure should materially exceed $20,000,000,000 per year, at present price levels, that a serious curtailment of the current consumption of civilians will be necessary." [42] Other countries are in a much less favorable position. Production of new passenger cars for domestic use was stopped long ago in England and Germany, and the civilian use of automobiles is severely restricted in the latter country. Moreover, while it is not anticipated that American consumers will have to reduce their purchases of non-durable necessities to a large extent, the curtailment of consumption in Germany

[41] *Defense*, August 26, 1941.
[42] Lecture before the Army Industrial College, April 8, 1940.

and England is not limited to durable goods. The reduction of food consumption in Germany has already reached an extent where it falls short of the minimum of 70 percent of the pre-war standard of living regarded as "psychologically tenable in the long run." [43] Studies of retail sales in England indicate that per capital real consumption has fallen by 13 percent between 1938 and the first quarter of 1941. The decline was 35 percent in clothing and household goods. A study of grocery sales indicated a cut in real per capita consumption estimated at 30 percent. The decline in quality is taken into account in this estimate.[44]

In Table 20, p. 103, estimates are presented of the disbursements of American consumers assuming total consumer-incomes of $70,000,000,000 and $80,000,000,000, respectively. The disbursements comprise durable and non-durable goods. The bulk of the durable goods is represented by such items as automobiles, household appliances, and housing. Curtailment of the consumption of non-durable goods, which are necessities rather than luxuries, would expose the civilian population to severe hardship. As contrasted with durable goods, purchases of non-durable goods cannot readily be postponed. Abstinence would contribute little to the defense effort, since establishments, resources and manpower used in the production of non-durable consumers goods cannot easily be converted to defense production.

As income increases, the proportion devoted to saving increases. So do the proportions spent on automobiles, recreation, and gifts and personal taxes. The percentages devoted to medical care, furnishings, education, and other items remain the same. The proportion of all other disbursements declines. As the general trend of family income rises, a shift in demand toward goods of higher quality is to be expected. "In 1939 almost 40 percent of all family units were in the income group having less than $1,000 a year. It is likely that in 1941 a little over a third of American families will remain in this less-than-$1,000 income category, and in 1942 it may be reduced to less

[43] K. C. Thalheim, "Die Grundlagen der deutschen Kriegsfinanzierung," *Weltwirtschaftliches Archiv* 51: 455 (1940). See below, p. 278.

[44] G. D. N. Worswick and T. Schulz, "Retail Sales during the War," Institute of Statistics, Oxford, *Bulletin* 3: 207–23 (July 19, 1941).

TABLE 20.—ESTIMATED DISBURSEMENTS OF AMERICAN CONSUMERS, ASSUMING TWO SIZES OF TOTAL CONSUMERS INCOME WITH SAME PROPORTIONATE DISTRIBUTION OF INCOME AS IN 1935–36 AND SAME SPENDING HABITS AND PRICES *

| *Category of disbursement* | *Aggregate disbursements (in millions of dollars) with total consumer income of —* | |
|---|---|---|
| | *$70,000,000* | *$80,000,000* |
| Current consumption: | | |
| Food | 18,503 | 19,874 |
| Housing | 10,753 | 11,876 |
| Household operation | 6,095 | 6,822 |
| Clothing | 6,145 | 6,949 |
| Automobile | 4,655 | 5,447 |
| Medical care | 2,582 | 2,919 |
| Recreation | 1,990 | 2,311 |
| Furnishings | 1,687 | 1,916 |
| Personal care | 1,170 | 1,289 |
| Tobacco | 1,091 | 1,189 |
| Transportation other than auto | 985 | 1,079 |
| Reading | 617 | 675 |
| Education | 626 | 746 |
| Other items | 355 | 402 |
| All consumption items | 57,254 | 63,494 |
| Gifts and personal taxes | 3,814 | 4,541 |
| Savings | 8,932 | 11,965 |
| All items | 70,000 | 80,000 |

* National Resources Committee, *Consumer Expenditures in the United States* (Washington, Government Printing Office, 1939), p. 167.

than 30 percent. On the other hand, the proportion of family units with incomes greater than $2,000 may be expected to rise from the 25 percent of 1939 to over 30 percent in 1941, and to over 35 percent in 1942. Inevitably this will mean an increase in the relative demands for goods of higher qualities and prices." [46]

Though the income elasticity of demand for food is low, there

[46] Address of Stacy May before the National Retail Dry Goods Association, Chicago. *Defense*, June 24, 1941.

was bound to be a considerable increase in this demand under the influence of the multiplier and the diversion of purchases from restricted durable goods to non-durable goods. The increase in demand could be easily met by making larger supplies available. The conversion of agriculture to defense production is not readily possible. Some of the more rigid restrictions which had been imposed upon the production of the various agricultural products during the 'thirties could be relaxed in 1941. Only those pertaining to cotton, tobacco and wheat were expected to continue through 1942. This year was expected to bring the largest food supply ever produced in the United States, with shipments to foreign countries absorbing about 10 percent of total supplies.[46]

Attempts have been made to estimate the part of consumers' expenditures which is above their direct physical and social needs. In the United States this part is said to be about $11,000,000,000 when the national income is in the vicinity of $70,000,000,000. These "optional" expenditures rise faster than the national income. It has also been calculated that consumption can be further reduced by $5–7,000,000,000 if individuals were reduced to a subsistence basis.[47] The "optional" consumption as well as the "subsistence" level thus calculated are made to vary with the different income groups! Estimates of this type have little meaning since they do not consider the degree to which the various resources set free by the reduction can be made useful for national defense. In some English estimates this factor has been taken into account. The following table presents a specified appraisal of economies in consumption, with an all-around reduction of 38 percent: 27 percent for necessities and 70 percent for luxuries. The percentages were computed upon the basis of total consumers' expenditures amounting to £4,420,000,000, which was the figure for 1937. In considering economies of this type, it is necessary to weigh a great variety of factors, including consumers' attitudes to deprivations of different types, influence upon civilian morale, convertibility of manpower and resources set free, domestic or foreign origin of

[46] *Defense*, September 9, 1941.

[47] M. R. Gainsbrugh, *Consumption, Saving and Defense Financing* (Studies in the Economics of National Defense No. 5, New York, National Industrial Conference Board, 1940).

the various commodities, and, in the latter case, economies in shipping space and foreign exchange. The multiplicity of the factors and the changing international scene makes all estimates extremely precarious.[48]

TABLE 21.—ESTIMATED ECONOMIES IN CONSUMPTION, ENGLAND *

| *Category of disbursement* | *Percent of total consumption in 1937* | *Proposed reduction, percent* |
|---|---|---|
| Necessities | | |
| Food | 30.6 | 20 |
| Rent, etc. | 14.0 | 33⅓ |
| Clothing | 10.1 | 40 |
| Fuel, light, water | 4.1 | 25 |
| Tobacco | 3.6 | 20 |
| Household expenses [a] | 2.9 | 25 |
| Total necessities | 65.3 | 27 |
| Rail, tram, and bus travel | 3.9 | 30 |
| Drink | 5.9 | 35 |
| Luxuries | | |
| Furniture and hardware | 4.4 | 75 |
| Entertainment and sport | 5.8 | 60 |
| Domestic service and laundry | 4.3 | 70 |
| Drugs and fancy goods | 3.4 | 75 |
| Automobiles, etc. | 2.8 | 70 |
| Miscellaneous | 4.2 | 70 |
| Total luxuries | 24.9 | 70 |
| Grand total | 100.0 | 38 |

* Geoffrey Crowther, *Ways and Means of War* (New York, Oxford University Press, 1940), p. 118. Mr. Crowther has adapted the table from R. W. B. Clarke's *The Economic Effort of War* (London, Allen and Unwin, 1940), p. 53, from which the first column of our reproduction (omitted by Mr. Crowther) is directly taken.

[a] Soap, matches, stationery, newspapers, stamps.

[48] For a full discussion and justification of the various items in Table 21 see R. W. B. Clarke, *The Economic Effort of War* (London, Allen and Unwin, 1940), pp. 52–64; Geoffrey Crowther, *Ways and Means of War* (New York,

The incidence of sacrifices resulting from economies in consumption must be distributed in a manner which will do least harm. This implies that the percentage reduction of the consumption of the rich must be greater than that of the poor, since the sacrifice entailed by reducing total consumption by a given amount is negatively correlated to the volume of total consumption available to a person. On the other hand, sacrifices of the rich alone would not suffice since the poor are so much more numerous than the rich and well-to-do that their aggregate consumption may have to be curtailed in order to set free the resources required for war. The proportion of aggregate consumption absorbed by the various income groups in the United States is indicated in the following table.

TABLE 22.—PERCENTAGE OF AGGREGATE EXPENDITURES MADE BY AMERICAN CONSUMERS (FAMILIES AND SINGLE INDIVIDUALS) AT DIFFERENT INCOME LEVELS, 1935–36 *

| *Income level* | *Percentage of families and single individuals* | *Percentage of aggregate expenditure* |
|---|---|---|
| Under $1,000 | 46.5 | 23.8 |
| $1,000–$2,000 | 35.3 | 36.6 |
| $2,000–$3,000 | 11.2 | 18.0 |
| $3,000 and over | 7.0 | 21.6 |
| All levels | 100.0 | 100.0 |

* National Resources Committee, *Consumer Expenditures in the United States* (Washington, Government Printing Office, 1939), p. 48.

The last column of Table 22 indicates consumption, not income, which is also composed of savings, gifts, and personal taxes. Though the inequality of consumption is far less extreme than that of incomes since the rich do not utilize their claims to wealth to the full extent, the table is indicative of considerable variations in consumption. The lowest income group, represented by over 46 percent of

Oxford University Press, 1940), pp. 115–21. A similar table has been made up by J. Keith Horsefield, *The Real Cost of the War* (Harmondsworth, Middlesex, Penguin Books, 1940), pp. 22–34.

all consumers, absorbs only slightly more of the aggregate consumption than the top group with 7 percent of all consumers.

Though complete figures are not available for England, consumption seems to be even more unequally distributed in that country. 90 percent of all income receivers are reported as having incomes below £250 a year and consuming 63 percent of aggregate consumption, while the remaining 10 percent with incomes over £250 absorb 37 percent of it. This means that the average consumption per head in the high-income group is five and a quarter times that of the low-income group. Reduction of aggregate consumption by 35 to 40 percent would mean a "reduction varying between nothing and, say, 40 percent in the lower-income group, and a reduction varying between 40 percent and, say, 80 percent in the higher-income group." [49] It has been pointed out, however, that the figures which indicate the proportion of aggregate consumption absorbed by the rich tend to understate their consumption of specific commodities. One-tenth of the population was reported to consume nearly one-half of all clothing in England, and, since they do not buy mass-produced goods, absorb a much greater proportion of total manpower employed in the industry. A still higher proportion was reported for many important lines of semi-luxury goods.[50]

The manner in which the burden of sacrifice is distributed among the various income groups is bound to influence defense production in important respects. To secure the highest efficiency, morale must not be impaired and unnecessary sacrifices of the citizens must be minimized. No sacrifice can be expected from those groups whose standard is dangerously near to the subsistence level. If no reduction of the consumption of non-durable goods is necessary, convertible resources can be released only if the incidence falls more heavily upon those groups of whose budgets the expenditures for durable goods absorb a high proportion. Under these circumstances a reduction of the consumption of the poor would release resources which do not contribute to the war effort.

[49] Clarke, *op. cit.*, pp. 45–46.
[50] T. Balogh, letter to the London *Times*, November 23, 1940.

# CHAPTER V

# THE PRICE SYSTEM UNDER THE IMPACT OF WAR

The subsequent three chapters are devoted to an analysis of the different economic methods used for implementing the war effort. The present chapter contains a discussion of the operation and limitations of the price system in the war economy. In Chapter 6 the principles established in the present chapter are applied to the specific problems pertaining to the supply of labor. Chapter 7 deals with direct measures of control including commandeering, rationing and priorities, which interfere with the operation of normal economic incentives under the price system, and is concluded with an analysis of the measures of concentrating and dispersing production in wartime. Chapters 8 and 9 are composed of case studies designed to bring to light the effects of the policies discussed in the preceding chapters upon the various materials and foodstuffs.

In positive terms the war effort consists of the production of munitions and other implements of warfare. We have seen that this is either accomplished by an expansion of existing production or by its conversion. Once full employment of available capacities has been attained, conversion must follow upon expansion. As the width of the economic sector which is converted to the production of armaments gradually increases, civilian consumption is reduced correspondingly. We can thus distinguish positive and negative aspects of the war effort. In positive terms it consists of the production of armaments, in negative, of the reduction of civilian consumption concomitant with the conversion of productive facilities and labor. Economic policy in wartime is designed to attain the war effort in its positive and negative aspects. It must stimulate the production of armaments in the most vigorous manner and reduce civilian consumption in a way minimizing unnecessary sacrifices of the population. There is, however, an important difference between both types of policy. In

a sense, only policies designed to bring about the war effort in its positive aspects are absolutely essential and indispensable. If the positive effort of war is attained, civilian consumption has automatically been reduced without requiring any further action. On the other hand, policies designed to stimulate the negative effort are in no way sufficient to secure the positive effort and must be supplemented by deliberate action in order to bring about the latter. This will be made clearer by means of a few examples. The fact that patriots abstain from the purchase of automobiles in order to make the productive facilities of the automobile industry available for aircraft production, does in no way guarantee that the productive facilities of the industry will be utilized in the manner desired. Even if the patriot would use the money which he has saved as a result of his abstention, for the purchase of defense bonds, there would still be no certainty that his intention will materialize. On the other hand, if there is a conversion of automobile to aircraft production, the number of cars available for civilian purposes is automatically reduced and no further effort is required to curtail civilian consumption.

There is thus a logical priority of the positive effort of war in relation to the negative effort. In other words, the positive effort, once full employment is attained, cannot take place without automatically being accompanied by the negative effort. The negative effort, on the other hand, may well terminate in itself without being accompanied by a positive effort.

Policies pertaining to the negative effort are, however, of considerable importance insofar as it is by means of these policies that the incidence of consumers' sacrifices is determined. If this is done in a satisfactory manner, it will favorably affect civilian morale and industrial efficiency. These policies include saving, taxation, and rationing. In the absence of such policies, civilian consumption is automatically curtailed by means of inflation. Inflation occurs when a rise in the wage bill and in employment is met by an inelastic or dwindling supply of consumers goods. Under these circumstances the prices of consumers goods rise in relation to the costs of labor and raw materials. On the higher price level, consumers are forced

to reduce their purchases to that amount which is left after military requirements have been met. Instead of inflation, consumers' purchasing power can be reduced by saving, taxes, or by a diminution of money wages per unit of output while prices are kept steady. To avoid inflation completely, both the latter cuts would have to be too severe as to be politically and psychologically feasible. For all practical purposes, taxation alone cannot completely prevent inflation but may have a moderating effect upon its extent. The complete avoidance of inflation requires strict rationing of consumers' purchases, a measure beyond the limits of the normal operations of the price system. In practice, governmental policies tend towards combinations of inflation, taxation and rationing, with the emphasis upon either one of these devices.

Policies pertaining to the negative effort of war will be more fully discussed subsequent to the following analysis of the positive effort.

## The Price System and the Positive Effort of War

Our economic order is a price system in which prices are the regulator of economic activity. The functions of the price mechanism have been described as follows:

1. Determination of the direction and extent of production.—The prices consumers are willing to pay for various goods in various quantities is the fundamental directing force. High price offers will represent urgent desires, and the production of the goods more highly desired is therefore the only method by which entrepreneurs can cover the costs of production.
2. The organization of production.—This function consists of two parts: the allocation of resources among industries and firms; and the effective coördination of resources within firms. Again prices play a fundamental role. The price of the product is one factor in determining how much an entrepreneur will bid for a productive service. The efficiency with which he uses that service is the other factor. Resources, then, will flow to the industries that will pay most for their use, and in each industry they will be used in the most effective possible manner with existing technical knowledge, with a view toward maximizing entrepreneurial gains.
3. Distribution of the product.—The effective consumption of any person, i.e., his share of the total product, depends on two sets of

prices. The first set consists of the prices of the productive service he sells to entrepreneurs, and wages are the most important prices here. The other set of prices are those of the consumers' goods themselves. Both of these sets of prices are, of course, present also in the solution of the foregoing functions of an enterprise economy.[1]

In a free enterprise economy it is thus by way of the price system that producers are guided in their decisions pertaining to the extent and direction of production and that men and resources are allocated to the various types of production. Under the price system, consumers and entrepreneurs occupy strategic positions. In the absence of monopolies and imperfections of competitions, it is the consumer whose preference determines what shall be produced and how much of it. However, the price system operates only in the long run. Since men and resources cannot be mobilized easily and swiftly, time periods of varying length are required to bring about changes in production in response to changes in consumers' preferences expressed by changes in prices. Not only does the price system operate in the long run, it is also geared to bringing about small changes.

In the war economy, changes required in production are large and must be swiftly accomplished. As has been pointed out, "time is the essence of armament whether there is military warfare or not. But if actual warfare exists, the time element becomes supreme, since the new techniques of warfare involve instruments of transport, highly mobile and able to strike at industrial plants over wide territories. Accordingly, the economics of modern warfare is as always a transformation problem, but since the great development of the gasoline engine in the twenties, it is now also concerned with the unpleasant fact that slowness in transformation may reduce the possibility of transformation through attack on industrial plants. The war potential is not a matter of relative national wealths alone: it is a function also of the military power available to defend the economic power until it is transformed into military striking power." [2]

[1] George J. Stigler, Francis M. Boddy, and Frederic B. Garver, *Materials for Advanced General Economics* (planographed, Minneapolis, University of Minnesota, 1939), pp. 2–3.

[2] Stewart Bates, "The Price System and the War Economy," *Canadian Journal of Economics and Political Science* 7: 330 (1941).

Moreover, the operation of normal economic incentives under the price system may not be efficient in securing the conversion or expansion of productive facilities in accordance with military requirements, since entrepreneurs are uncertain about the enduring character of war demand. This difficulty is aggravated by the monopolistic structure of industries and the spirit of restrictionism which expressed itself in a great variety of devices designed to stabilize output at higher prices than would have been attained in the absence of these restrictions and under conditions of competition. If this spirit of restrictionism permeates the thinking among powerful industrial groups, it is extremely difficult to achieve expansion of production by means of the operation of the price system.

The price system operates under the stimulus of the profit motive. If the war economy were exclusively organized along the lines of the price system stimulated by profits, this would result in "a rapid rise in profits and wages in the war sector and corresponding bankruptcy and unemployment in the 'non-essential' sector." [3] Moreover, speculation would induce people to withhold supplies from the war sector, and the restriction and conversion of non-essential production would be hampered by the desire of entrepreneurs to maintain the existence of their concerns by falling back upon capital reserves and keeping their labor and machinery in idleness.

If the price system operates unhampered, the economic effort of war is stimulated by greatly enlarged profits. The devastating influence upon morale, which such a system is bound to exert, would be tolerable only if it were compensated by a special efficiency attached to the price system in wartime. The case against the operation of normal economic incentives is further strengthened if "exceptional incomes are not only earned, but spent" and used for resources which otherwise would be available for war. "This point is even more important than appears at first sight. The function of the economic incentive is to call forth supplies which would not otherwise have been forthcoming, to induce economies which would not otherwise have been made. This is what it is for; but in order to get this func-

[8] T. Balogh, "The Role of Compensation in the War-Economic System," Institute of Statistics, Oxford, *Bulletin* 3: 99 (April 5, 1941).

tion performed it is usually necessary to confer the same advantage in other places where the job would have been done without the incentive being given. A rise in prices leads to an increase in output; but the higher price has to be paid, not only on the additional units, but also on those units which would have been produced just the same without the rise in price. . . . The fact that considerable quantities of resources, which might have been used for more important purposes, are likely to be occupied in providing these 'rents' is a very bad mark against the economic incentive in wartime." [4]

Wartime policies are thus designed to supplement the price system by a great variety of direct economic controls. These consist of the operation of industries by the government, of commandeering, rationing, priorities and price regulation. These measures are usually applied gradually and tend to become more intensive with the absorption of unused capacities and unemployed labor. Direct controls tend to emerge in an improvised manner under the impact of the emergency and constant changes of the national and international scene. "Improvised control is necessarily imperfect," and must, therefore, be supplemented by ordinary economic incentives, "though the part can be smaller the more efficient the direct controls can be made." [5]

From the foregoing discussion of the deficiencies of the price system in war the general rule can be derived that the operation of normal economic incentives is most helpful among those economic agents whose wartime activities do not differ fundamentally from their peacetime occupations. The price system, while not efficient in the recruitment of the armed forces, may well be suitable for the stimulation of ordinary work. Moreover, even the most severe control is bound to reserve a great variety of activities to the stimulation of normal economic incentives. This is particularly the case among those sectors of the economy in which control assumes the form of prohibitions and limitations rather than of commands. "It is here that the economic incentive has an essential part to play. When materials

[4] J. R. Hicks, U. K. Hicks, and L. Rostas, *The Taxation of War Wealth* (New York, Oxford University Press, 1941), pp. 6–7. By permission of The Clarendon Press, Oxford.

[5] *Ibid.*, p. 5.

are being rationed, and labor drafted off, the successful search for substitutes is a positive contribution to the war effort; but it is essentially the same kind of activity as makes for efficient business management in peace-time, and which is directly stimulated by the profit motive." [6]

The particular blending of normal economic incentives with direct controls creates an ambiguity of status and incentives which gives rise to fundamental difficulties. These will be illustrated by experiences in Germany and England. Under the Nazi regime controls are extremely severe and comprehensive but have not prevented the rise of excessive profits. To satisfy public opinion it was necessary to decree measures designed to make profits appear less large than they were in fact. At first, dividends on stocks in excess of 6 percent were not paid in cash but had to be invested in government securities. In 1941, the government announced a program of severe taxation of such dividends. At the same time, however, corporations were given special opportunities for the dilution of their capital stock. By raising the nominal value of existing shares or by issuing additional shares to share holders, it was thus made possible to continue with the distribution of high profits, while nominal dividends would decline and the public be deceived about the extent of wartime profiteering.[7]

The profit motive in Nazi Germany is blended with a large number of other motivating forces ranging from fear, obedience, willingness to imitate and excel others in the support of the regime and its aims, to what is believed to be patriotic enthusiasm and a misunderstood and perverted feeling for what is not the common wealth but rather the common "illth." This particular blending of motives is perhaps more compatible with the German character, its "cult of the object," and "constant striving to justify all action on metaphysical grounds," than it is with the character of other nationalities. An astute observer once remarked that "even the foxiest German business man claims to be serving an ideal at a sacrifice." [8]

[6] *Ibid.*, pp. 3–4.

[7] For an able analysis of some aspects of capitalism under fascism see Maxine Y. Sweezy, *The Structure of the Nazi Economy* (Cambridge, Harvard University Press, 1941).

[8] Count Hermann Keyserling, *Europe*. Translated by M. Samuel (New York, Harcourt Brace and Company, 1928), pp. 100–101.

The position of the entrepreneur has been characterized by a Nazi writer as follows:

> The responsibility of the entrepreneur in matters of war economics is extraordinary. He can only live up to it if he has been sufficiently disciplined, or, if he is expressly told what to do. . . . To a high degree, war economics is planning, and interference of the authorities with economic life is unavoidable. However, the economy can retain its character as free economy to a much higher degree than it seems possible on the outset, if there is a favorable disposition and attitude towards war economics in enterprises and among workers, i.e., if economic conscription is not felt as compulsion but is accepted as a matter of course.[9]

In England, the *Economist* pointed out that the war organization cannot simply be "grafted on to the peacetime system of individual firms. . . . In war economy, every producer, worker or employer is the State's agent. . . ." On the other hand, if:

> . . . the enterpreneur, the trader and the farmer are still expected to manage their businesses at their own risk, . . . they naturally take steps to prevent wartime restrictions from causing them losses. In turn, they tend to be regarded by civil servants, and by the public, not as victims but as rogues. What are commonly called vested interests, including organized labor, in seeking to protect themselves will oppose restrictive measures. . . . This inevitable push-and-pull of a peacetime community in wartime strait-jacket is no help to the war effort. It is a definite determent to the introduction of the drastic policies that full production and a fair distribution of consumption would entail. . . . What is needed is a temporary wartime system of collective control over all economic activities in which every individual would be fairly remunerated or compensated by the State, and in which every individual would receive no less and no more than a basic ration of food and clothing. This would be a wartime economy. There would be no prejudice to its unfreezing when the war was over; and there would be no needless barriers to the introduction of the policies needed to make the utmost of all the nation's resources for war production.[10]

[9] K. Hesse, "Wehrwirtschaft als wissenschaftliche, militärische und wirtschaftliche Aufgabe," *Kriegswirtschaftliche Jahresberichte, 1938* (Hamburg, Hanseatische Verlagsanstalt, 1938), pp. 28ff.

[10] *Economist*, July 12, 1941, p. 42.

The ambiguity of incentives is further enhanced by profit limitations.

> In a great many cases it makes practically no financial difference to the employer whether output is high or low. To the pieceworking employee it is supposed to make a difference; but where he is kept standing idle for part of the week this difference often disappears; and the piecework incentive ceases to operate. Now these conditions, in their psychological effects, make the worst of both worlds. The employer still feels himself to be a profit-maker, but a thwarted one. . . . The workman still feels himself to be the employee of a capitalist, profit-making concern, but ceases to be able to add appreciably to his earnings by working harder. Both employer and employee may be patriotic citizens, and believe themselves to be devoted to the task of beating the Nazis. But upon both alike the ambiguity of status and incentive acts as a powerful deterrent to continuous effort; in both it engenders a cynical and even irresponsible state of mind.[11]

*The government as customer.*—To the degree to which war production proceeds within the framework of the price-system, the role of government is limited to that of a customer. In the United States, various laws were passed since 1939 designed to speed up governmental purchasing procedure by freeing it from some checks and restrictions normally imposed upon it. The competitive bidding system was partly abandoned. In the main, four different types of purchasing procedures were used: (1) Direct purchases without competitive bidding; (2) Lump-sum contracts by negotiation; (3) Lump-sum contracts by competitive bidding; (4) Cost-plus-fixed-fee contracts. The first type was used principally for purchases of small quantities of materials, the second and third types for more substantial amounts, and the fourth for construction work. Cost-plus-percentage-fee contracts, which had been widely misused during the World War of 1914–18, were still awarded during the early months of the defense effort in 1940 but their use seems to have been reduced subsequently.

Other types of contracts include the so-called target-cost contract, which has been found suitable for war production in England. Un-

11 "Absenteeism and Its Remedy," *New Statesman and Nation*, June 21, 1941, pp. 620–21. See also below, p. 329.

der this contract a target cost is fixed which is based on previous experience. The target cost includes a fee and is generally fixed before the start of the work but often much later. If actual cost falls short of target cost, the difference is shared by the contractor and the government. If target cost falls short of actual cost, the difference is either shared or wholly borne by the government, often within a maximum limitation.[12]

The cost-plus-fixed-fee contract, while somewhat less undesirable than the cost-plus-percentage-fee contract, still has grave shortcomings, especially if used without competitive bidding. This method, in the form in which it was used for the camp and cantonment projects of the United States in 1940 and 1941,

> completely deprived the government of any possible competition between competitors for the contract, and even deprived the government of the possibility of negotiating with the contractors or architect-engineers to determine the minimum amounts for which responsible firms could be induced to take the contracts. The members of the committee [appointed to determine fees] which had determined the fees to be paid were principally engineers and other professional men, who certainly had little interest in seeing to it that the profits of professional architects, engineers and contractors should be minimized. The ratio of fees which they ultimately decided to allow to the total value of these huge projects was not unduly out of line with the percentage of fee which had been obtained in some cases from private contracts. However, such private contracts were not comparable. They usually involved much smaller total amounts, so that a large percentage involved a fewer number of dollars. . . . The ridiculous effect of applying percentages of fees selected by such a committee is indicated by a comparison of the average profits which the contractors and architect-engineers had been able to obtain in recent years on private work with the amount of their fees, less nonreimbursable expenses, as computed by them. . . . It appears that for a three-months' job without risk, the excess of the fees claimed over their nonreimbursable expenses as computed by them, was in nearly all instances far in excess of the profit which they had been able to earn in an entire year through private contracts, with all the risks inherent in firm commitments. One architect-engineer will earn as much as 1,478 percent of his average annual profits, and one con-

[12] J. Steindl, "Economic Incentive and Efficiency in War Industry," Institute of Statistics, Oxford, *Bulletin* 3: 164–69 (June 7, 1941).

tractor will earn as much as 1,669 percent of a year's profits, if the adjusted fees as estimated by the contractor and architect-engineer are allowed. . . . These fees would have been even more disproportionate to profits from private work if it had not been for the War Department's failure to make estimates as to cost which remotely compared with the actuality. . . .[13]

There is little doubt that lump-sum contracts are much preferable to cost-plus-fixed-fee contracts, since contractors are induced more strongly to stamp out inefficiency and to hold down costs if they have to sustain the loss. The Senate Committee from whose report the above quotation is taken made an analysis of 46 camps and cantonments and found that in the camps constructed under a lump-sum form of contract the average cost per man was $380, compared with $684 in the camps constructed under a fixed-fee type of contract. "The cost-plus-fixed-fee contract is not as bad as the cost-plus-a-fixed-percentage contract which was used in the last war. It has been aptly said that in the last war the contractor had to work to make the costs even more excessive than they would otherwise have been in order to get his large fee. In the present case, we have improved it so that now it can be said that the contractor need do nothing to get his fee." [14]

*Encouragement of expansion of productive facilities.*—To remove the uncertainty of enterpreneurs with respect to the enduring character of war demand, various measures were enacted in the United States designed to encourage the expansion of productive facilities. These measures include tax reductions and direct reimbursements.

Under the existing law the taxpayer was permitted to spread the cost of his depreciable assets over their expected useful life. This cost is deducted from the taxpayer's income during the years when the asset is contributing to his income.

In case of the expansion of plant and construction of equipment for the defense program, however, the length of time during which orders for weapons and other materials of war will continue is un-

[13] Special Senate Committee Investigating the National Defense Program, 77th Cong., 1st Sess., *Additional Report* (S. Rep. No. 480, Part 2, Washington, 1941), pp. 18–20.

[14] *Ibid.*

certain. In those cases in which the plant and equipment will have little or no other use after the completion of the defense program, the rate of depreciation must be increased if the manufacturer is to have the opportunity of charging the cost against income during the period of the emergency. Such accelerated depreciation, or amortization, cannot be allowed under existing law.[15]

The Excess Profits Tax Act of 1940 provided relief by allowing the deduction of 20 percent per year of the expenditure for emergency plant construction from taxable income so as to permit amortization in five years. In 1941, the same privilege was granted to holders of defense contracts with respect to the New York State franchise tax on business corporations.

To be eligible for special amortization, the defense construction must be certified as necessary by the defense authorities. A certificate of necessity, however, did not foreclose the federal tax authorities against challenging the claim for depreciation. Conclusive evidence was constituted only by a certificate of non-reimbursement. This certificate, which is likewise issued by the defense authorities, assures that the costs of the new productive facilities are not reimbursed by the government either by prices including a return of cost greater than normal exhaustion, wear and tear, or otherwise. Taxpayers who had been or would be reimbursed by the United States for all or part of the cost of the new facilities have to procure a certificate of government-protection to be eligible for amortization-deduction. This certificate assures that the contract adequately protects the United States with reference to future use and disposition of the facility.

On the outset, it seemed that manufacturers were not too eager to make use of the opportunity for accelerating amortization, since taxes after the completion of the defense program were expected to be high and profits low, so that depreciation on the defense plants would offer a "cushion." Other observers pointed out that "even if the relatively low normal rates of depreciation are allowed, defense plants will be amortized quickly. The normal rate at present is 8

[15] Excess Profits Taxation, 1940. *Joint Hearings* before the House Committee on Ways and Means and the Senate Committee on Finance, 76th Cong., 3rd Sess., 1940, p. 75.

percent, but on full twenty-four hour, seven-day operation, machinery depreciation can easily reach a rate of 30 percent, so that the write-off on the plants will be completed in a short time." [16] However, with the progress of time the number of certificates of necessity increased greatly. By September 30, 1941, 2,532 of these certificates had been issued, covering facilities with a cost of $1,216,578,000. Less progress was made with the issuance of certificates of non-reimbursement. Not only were the legal provisions governing this certificate extremely complex and difficult, but detailed cost statements were required in support of applications. Only 14 certificates out of 700 applications had been issued by May, 1941.

Other provisions were designed to completely eliminate the risks involved in the expansion of productive facilities in cases where the cessation of defense demand would seriously diminish their usefulness. In such cases the facilities can be amortized within five years by direct reimbursements from the government. The technique used includes "emergency plant facilities," or "bankable," contracts, under which

> the price charged the government for the goods produced does not include amortization and depreciation charges; instead, the government reimburses the contractor for his new capital expenditures in five annual payments separate from the unit price. . . . In order to facilitate financing, either by private capital or the Reconstruction Finance Corporation, the contractor is permitted to assign his claims to amortization installments.[17]

Upon termination of the agreement, the ownership of the new facilities passes to the government. The latter, however, may not use them for commercial purposes and is required to give the contractor an opportunity to purchase them

> at a price based on the actual cost to the government for the construction of the plant, less "depreciation, obsolescence and loss of value due

[16] New York *Times*, February 1, 1941.

[17] "Mobilization for Defense," *Harvard Law Review* 54: 306 (1940). Cf. the admirable work by Lynn L. Bollinger, *Financing Defense Orders* (New York and London, McGraw-Hill Book Company, 1941), and, for the British and Canadian practices, an address of Mr. David Ginsburg before the Practising Law Institute, New York City, March 24, 1941, in part reprinted in *Defense*, April 8, 1941.

to use for national defense purposes." But this protection to the government's equity may be materially dissipated by the proviso that the contractor shall have the alternative "right to negotiate with the contracting officer and to purchase the plant at a price representing the fair value of the plant" based presumably on future earning capacity calculated in a post-emergency depression. . . .

Special arrangements are made for "additions to the existing plant" as distinguished from "a complete emergency plant." In regard to new equipment that replaces a contractor's previously existing facilities or is necessary to his plant, the contractor is given the choice of requiring the government to remove the additions or of using them without cost other than upkeep. And the contractor is entitled to compensation for expenses which he may incur in keeping idle machinery, not vital to his normal operations, but left by the government as "stand-by" capacity.[18]

Experts trained in the legal techniques involved claimed that these provisions, liberal as they were, represented a considerable improvement compared with the situation during the World War of 1914–18, when the government paid for the rapid amortization of plant expansion on a unit cost basis without retaining an equity. Several objections have, however, been made to the new arrangements, particularly since they restrict the post-emergency disposition of the facilities.[19]

*Profits in Wartime.*—These measures, though they are not designed to support the revival of monopolistic positions in the post-emergency situation, go a long way toward eliminating all typical risks involved in the expansion of productive facilities. Risks involved in the actual production of the implements of war are likewise restricted or eliminated in view of the fact that war production is production on order, not in anticipation of future orders, as is normally the case with respect to the bulk of goods produced in the modern exchange economy. There is little doubt that this factor requires serious consideration when prices are negotiated for the delivery of arms and ammunitions. It has been pointed out that "as an emergency policy, war orders which can be supplied by the employment of existing equipment ought to be placed on the principle that the additional costs incurred by fulfilling the order (*strictly excluding over-*

[18] "Mobilization for Defense," p. 307.
[19] *Ibid.*, pp. 307–308.

*heads*) are no more than covered by the price of the product.[20] The policy (followed in the last war) of paying costs (*including* overheads) plus a percentage for 'profit' has no social justification. . . . Until the equipment of a firm is fully employed, *i.e.*, until it is working for the full twenty-four hours (unless there are insuperable technical obstacles to the multiple shift system), there is no reason why that firm should be allowed to earn (let alone retain) any excess profits. This principle only ceases to apply when the existing capacity of an industry is so fully utilized that the installation of new plants or even of new factories is necessary for a full response to demand. . . . In those lines of production in which any existing plant is not already fully utilized whilst able to execute orders which, at the existing price, would cover additional costs, the existing price is too high. The prices at which war supplies are obtained should tend to be considerably lower than the prices of the same products in peace time except in so far as materials have risen in price." [21]

However, normally large profits are made in war and have been made in past wars. "During the War period [of 1914–18] and the years immediately following, American corporations reported net profits of more than thirty billion dollars, exceeding the immediate cost of the war to the government of the United States; 21,000 new millionaires were created by 1919. . . . Although concentration of enterprise was the outcome of war, this is very far from saying that warfare was profitable everywhere and to business as a whole. . . . For small-scale business war brought new threats. Only of the neutrals, Holland, Sweden, Switzerland, and the United States which did not enter until the last year of war, may it be said confidently that they won more than under peace-time conditions." [22]

Excess profits taxation and similar methods of draining profits already accrued have never proved efficient in the complete elimina-

[20] The additional costs would, of course, include "user cost"; *i.e.*, additional depreciation (including contribution to replacement reserve when the replacement cost of equipment is rising) arising through the execution of the order.

[21] W. H. Hutt, "Economic Lessons of the Allied War Effort," *South African Journal of Economics* 8 (1940), special reprint, pp. 17–18.

[22] From Miriam Beard, *A History of the Business Man* (New York, The Macmillan Company, 1938), pp. 720–21. By permission of The Macmillan Company, publishers.

tion of wartime profits. This objective could only be attained in connection with a complete avoidance of inflation. It will be recalled that inflation occurs when a rise in incomes, particularly in the wage bill and in employment, is met by an inelastic or dwindling supply of consumers goods. Unless there is comprehensive and strict rationing, saving and taxation are generally not sufficient to prevent a rise in the prices of consumers goods relative to the costs of labor and raw materials. On the higher price level, consumers are forced to reduce their purchases to the amount left after military requirements have been met. Profits thus are bound to accrue as a result of the competitive bidding upon which consumers and the government engage in the price system, and which drives prices up until that part of civilian demand which cannot be satisfied is eliminated. Profits accrue because the marginal propensity to consume is very high on the part of wage-earners. Under conditions of inelastic supply of consumers goods, they are, however, frustrated in their claims to more consumers goods by the operation of the very bidding-process by means of which they hope to obtain consumers goods. The resulting gap between prices and costs leads automatically to the accretion of profits. If wage-earners can be induced to increase the rate of saving, this will necessarily restrict the growth of wartime profits and leave with them the claim to future goods, a claim which they otherwise transfer to the profit-receivers. Unless they do this, the purchasing power for whose satisfaction no consumers goods are available is automatically transferred to groups whose propensity to consume is low.[23]

In the United States, profit limitations imposed upon airplane and shipbuilding contracts by the Vinson-Trammell Act of 1934, were reduced from 10–12 percent to 7–8 percent in June, 1941. However, it was soon found necessary to eliminate the restrictions completely in order to secure adequate supplies.

The Federal Reserve Bank of New York, in a study covering 1,099

[23] It has been calculated for England that there is a marginal propensity to save of 3/7 on the part of businessmen with respect to profits. In other words, of each £ addition to profits, £ 3/7 is regularly placed to reserve. E. A. Radice, *Savings in Great Britain 1922–1935* (London, Oxford University Press, 1939), p. 69.

corporations, reported that net profits (after all taxes and charges) for 1940 had increased by 19 percent over 1939 profits.[24] The same percentage was calculated in a study of the National City Bank of New York covering 2,590 corporations. This calculation indicated the following increases for industrial sub-groups: transportation, 91 percent; manufacturing, 25 percent; service and construction, 15 percent; mining, 14 percent; public utilities, 5 percent; finance, 2 percent; trade, —3 percent (decrease). These corporations comprised about 41 percent of the net worth of all active corporations in the United States, numbering around 471,000. As the bank stated, their rate of earnings is always higher than the average for all corporations. Profits represented a return of 7.4 percent on the net worth of the group, compared with 6.3 percent upon a slightly smaller net worth in 1939.[25]

Other tabulations indicated an aggregate net income of 600 corporations 25 percent in excess of that for 1939.[26] Still others, limited to 230 corporations in the heavy industries, found net income 71 percent higher.[27] The following is a more detailed survey of the increase in the net incomes of the ten industrial concerns reporting the highest incomes for 1940.

TABLE 23.—NET INCOMES OF LEADING INDUSTRIAL CONCERNS, 1939, 1940

| | *1940* | *1939* |
|---|---|---|
| General Motors | $195,500,000 | $183,290,222 |
| U.S. Steel | 102,181,321 | 41,119,934 |
| Du Pont | 86,945,173 | 93,218,664 |
| General Electric | 56,241,000 | 41,235,644 |
| Bethlehem Steel | 48,677,524 | 24,638,384 |
| Reynolds Tobacco | 25,548,424 | 25,645,455 |
| Woolworth | 24,104,815 | 29,310,353 |
| Inter. Harvester | 23,161,110 | 7,952,810 |
| Republic Steel | 21,113,507 | 10,671,343 |
| Liggett & Myers | 20,339,241 | 20,705,549 |

[24] *Monthly Review*, April 1, 1941, p. 28.
[25] *Monthly Review*, April, 1941, p. 43.
[26] New York *Times*, March 2, 1941.
[27] *Ibid.*, April 6, 1941.

The five of the above corporations which had the greatest dollar increase in net earnings were as follows: [28]

| | *Increase in net income over 1939* | |
|---|---|---|
| | *dollars* | *per cent* |
| Inter. Harvester | 15,208,300 | 191.3 |
| U.S. Steel | 61,061,387 | 148.5 |
| Bethlehem Steel | 24,039,140 | 97.6 |
| General Electric | 15,005,356 | 36.4 |
| General Motors | 12,209,778 | 6.7 |

The movement continued in 1941. A study of the Federal Reserve Bank of New York, covering 511 corporations, indicated net profits during the first six months 22 percent in excess of net profits during the first half of 1940.[29]

## The Negative Effort of War

We have seen (above, p. 108 )that the negative effort of war consists of the reduction of civilian consumption concomitant with the conversion of materials, productive facilities and labor to war production. The nature of the negative effort implies that no reduction of civilian consumption is required as long as the war effort is on its first stage of expanding production to the limits of capacity.

It has been noted that the execution of the negative effort is incidental to that of the positive once the latter is no longer limited to the expansion of production but requires conversion of production. If productive energies are converted to military production, the amount of goods available for civilian consumption is automatically curtailed and no special policies are required to bring about such curtailment. However, policies pertaining to the negative effort of war are of great importance. As mentioned before, they determine the incidence and distribution of the sacrifices required on the part of the civilian consumers. Beyond this function, they also settle the financial problems to which production for war gives rise. Alterna-

[28] New York *Times*, March 2, 1941.

[29] *Monthly Review*, September 1, 1941, p. 67. For profits in England see below, p. 168, for wages, pp. 168–72.

tive policies pertaining to the negative effort of war represent alternative methods of war finance.

As long as the war effort is carried on by expansion of production, additional purchasing power must be made available for the acquisition of the additional produce. During this transitional stage, the war effort must be financed in the same manner in which public works are financed during periods of unemployment, *i.e.*, by issuing money or its modern equivalent, raising loans from the banks. Any other policy would restrict aggregate purchasing power available and hamper the complete absorption of idle facilities and unemployed labor.

Once the war effort is no longer carried on by expansion of production, the following stage of conversion of production requires abstinence from consumption on the part of the civilian population. By means of this abstinence productive resources are set free to the extent to which they are appropriated by means of the positive effort of war and utilized for military purposes. In the price system abstinence is produced by voluntary saving and by forced abstaining from consumption. Forced abstaining is secured by inflation or taxation. Outside of the operation of the price system, saving, inflation and taxation may be supplemented by direct control over consumption through rationing. In the following pages, we discuss voluntary saving, inflation, and taxation. Rationing is dealt with in Chapter 7, below.

*Voluntary saving.*—If all individuals were to set aside voluntarily certain parts of their current incomes, they would thereby set free the employment of productive resources which the government desires to convert to war production. However, voluntary savings, though they are extremely helpful, would suffice only if "the scale of preferences of each individual were exactly the inverse of the scale of needs of the state—an inconceivable condition." [30] It is extremely unlikely that the citizens would reduce their spending for current consumption by exactly that amount which the government intends to spend for military purposes, and it is still less likely that they would

[30] T. Balogh, "Economic Mobilization," Institute of Statistics, Oxford, *Bulletin*, Vol. 2, No. 10: 5 (1940).

abstain from consuming exactly those commodities which require the employment of those productive resources which the government desires to convert to war production. It is much more likely that the citizens, if they reduce their current expenditures, curtail them "in an unhelpful way by cutting, say, education and entertainment." [31] Thereby they would set free through their saving the services of teachers and moving picture stars, while the government, having little use for these services, might desire to use automobile plants for aircraft production.

Even though voluntary saving alone does not suffice in securing a negative effort of war corresponding in direction and extent to the positive effort, it is extremely helpful as far as it goes. The individual act of saving sets free resources which make available more goods for war or for other consumers or do both in part. It is of little importance what the individual does with his savings. If individuals reduce their spending by an amount equal to the amount borrowed by the government from the banks, it makes little difference whether the government borrows it from banks or from individual savers. Borrowing from banks costs the government less interest than borrowing from individual savers. Much has been made of the alleged fact that, during or after the war, the dissaving of money hoards is easier than that of bank deposits, and the liquidation of the latter still easier than that of government securities. There is a slight element of truth in this argument, though it must be considered that bank balances are held either as cash balances for transactions and are then not available for consumption, or they appear to the public more attractive than government securities, in which case there is no fundamental difference from investments in government bonds.[32] If immobilization of the savings is desired, the purchase of insurance is much preferable to that of government securities.

In view of these considerations, the stimulation of the sale of war bonds by the government has a different function than is commonly assumed. While the conversion into war bonds does not attach quali-

[31] M. Kalecki, "General Rationing," *ibid.*, Vol. 3, No. 1: 2 (1941).
[32] *Idem*, "What Is Inflation?" Institute of Statistics, Oxford, *Bulletin* 3: 159–64 (June 7, 1941).

ties to savings fundamentally different from the qualities of savings hoarded or deposited with banks, a campaign designed to stimulate purchases of war bonds by the citizens is designed to increase the quantity of savings made by the citizens. People are likely to save more when they are requested to purchase government bonds than when they are simply requested to "save."

Of course, the purchase of government securities does not contribute to the real effort of war in any way unless the money spent for such purchases has been diverted from that part of income ordinarily spent for current consumption. In other words, the money must come from additional savings. The real effort of war is in no way facilitated if income receivers simply change the disposition of their savings, purchasing, say, government bonds instead of private securities, or using bank deposits for the acquisition of war bonds. This was not generally recognized during the World War of 1914–18. Mr. Keynes has pointed out the then "excessive preoccupation on the part of 'sound' financiers with the aggregate volume of bank money. . . . It was universally believed at the time that inflation would be avoided if old ladies, who had money on fixed deposit with their banks for years, could be induced on patriotic grounds to surrender these to the Treasury in exchange for war loans—for in that way any increase in the total volume of bank-money would be avoided!" [33]

The additional character of genuine war savings was well emphasized in London, when during a recent saving campaign, called "War Weapons Week," the public was not only urged to purchase government bonds, but was exhorted not to shop by loud-speaker vans which picketed popular stores. The *Economist* pointed out that "in any true view of the aim of war weapons weeks, the picketers appear as men of verve and enterprise. The idea is to cut down consumption pari passu with the rising total of savings, and 'do not shop' and 'save' should be almost synonymous." [34]

Campaigns designed to stimulate purchases of installment bonds

[33] J. M. Keynes, *A Treatise on Money* (New York, Harcourt Brace and Company, 1930), Vol. 2, pp. 175–76.

[34] May 31, 1941, p. 724.

and of life insurance are most helpful in stimulating additional savings. It may also occur that saving may be encouraged in the period following the purchase of war bonds, if the latter have been acquired not by means of additional savings but by means of bank deposits or with the help of bank credit. "If people have reduced their money balances in order to buy war loans they are likely to save a bit more subsequently, either voluntarily in order to restore an accustomed position of liquidity, or more or less involuntarily because their money balances run down towards zero." [35]

*Forced abstaining*.—In view of the limitations of voluntary saving as to the extent and to the type of resources set free thereby, the real effort of war is accompanied by a farther-reaching reduction of civilian consumption. This is accomplished by forced abstaining. Forced abstaining occurs when people are made to pay taxes out of their current income, leaving them only part of their dollar income for consumption, or when the dollar income available for consumption is left intact but buys only a smaller amount of goods. A reduction of the purchasing power of the dollar, or, an increase in the general level of prices, may be symptoms of inflation. Inflation occurs automatically to the extent of the gap between the reduction of consumption required by the conversion of productive resources and such reduction of consumption as is brought about by means of saving, taxation and rationing. The gap is thus always closed, in part by means of the orderly and deliberate processes of voluntary saving, taxation and rationing, in part by inflation. If savings are defined to include "forced saving" (through taxation, inflation, and rationing), "savings" always suffice to secure the positive effort of war.

We have seen that it is impossible to rely exclusively upon voluntary savings. Is it possible to rely upon voluntary savings and taxation, thereby avoiding inflation? If taxation in conjunction with voluntary saving is chosen to bring about an all-around reduction of civilian purchases sufficient to set free such productive resources as the war effort requires, taxes and savings would "have to be far greater than the cut required," since, as was said before, the scale of

[35] A. F. W. Plumptre, "An Approach to War Finance," *Canadian Journal of Economics and Political Science* 7: 6 (1941). Cf. below, p. 338.

preferences of each individual is not exactly the inverse of the scale of needs of the government.[36] To cut all conflicting expenditure, it would indeed be necessary to tax all income above the minimum requirements, because otherwise people might shift from non-conflicting to conflicting inessential expenditure.[37] Moreover, even drastic taxes leaving only an income equal to minimum requirements do not prevent the rich from the use of their capital for the purpose of current consumption. The difficulties are aggravated further by the time-lag between the accretion and taxation of incomes. Moreover, if taxation is pushed too far it will exert a paralyzing influence upon production and the spirit of enterprise, and provoke political resentment with its adverse influence upon civilian morale. For all practical purposes, inflation can be completely avoided only if saving and taxation are supplemented by the direct control over consumers' expenditures, such as rationing. The more comprehensive and strict the system of rationing, the smaller is the extent of inflation.

Inflation occurs when employment and the wage bill rise under conditions where it is impossible to increase the production of consumers goods. To the extent to which consumers' purchasing power is not restricted by saving, taxation and rationing, it must be further restricted by rising prices. These, in turn, call forth a further increase in money wages and again in prices. "The 'vicious spiral' arises because, after a fall in real wage rates, money wages cannot 'catch up' with prices and restore the real wage rates to the previous level. This is caused by the fact that in the periods in question the supply of consumption goods is for one reason or other inelastic."[38] The extent of inflation can be measured by the difference between the inflationary price of a consumers good and its "value corresponding to the normal relation between price and prime costs."[39] The more inflation progresses, the greater becomes the gap between the prices of consumers goods and their costs of labor and raw materials. The

[36] Balogh, *op. cit.*
[37] T. Balogh, "The Budget and Economic Mobilization," Institute of Statistics, Oxford, *Bulletin* 3: 117 (1941).
[38] Kalecki, "What Is Inflation?" p. 161.
[39] *Ibid.*, p. 162.

rise in prices is usually preceded by the exhaustion of inventories, and such "latent inflation" can be measured by the rate at which stocks run down.

Since wages form a larger part of prime costs than materials, changes in the prices of finished goods, in the absence of inflation, correspond more closely with movements of wage rates than with prices of raw materials or semi-finished goods. On the other hand, it is an unmistakable sign of inflation, if changes in the prices of finished goods correspond more closely with changes in the prices of raw materials than with wage movements. This symptom of inflation was measured in England early in 1941 by the differences in the percent increase of money wage rates and the prices of manufactures, intermediate products, and basic materials during the period from August, 1939, to January, 1941: wage rates increased 15 percent; manufactures, 34 percent; intermediate products, 50 percent; basic materials, 69 percent. For example, while the wage rates of clothing workers increased 15 percent, prices of clothing followed textile prices, which had risen 59 percent, and increased 52 percent.[40]

Inflation assumes the most serious proportions when the increase in prices induces people to take recourse to a flight from money to commodities. Under this form of "galloping inflation" money hoards and money claims such as bank deposits and bonds are liquidated and used for the purchase of goods, a process which gives the increase in prices a new and powerful stimulus. Under a fully developed war economy inflationary excesses of this type are prevented and restricted by direct controls over expenditures. Governmental policies usually comprise a combination of the various methods of securing the negative effort of war, with the emphasis upon voluntary saving, taxation, inflation, or rationing, or a combination of rationing with any of the other methods.

Though the process of inflation is disorderly and its incidence unequal between persons and objects of consumption, it has been pointed out that

[40] J. L. Nicholson, "Signs of Inflation," Institute of Statistics, Oxford, *Bulletin* 3: 65–67 (March 15, 1941).

the common disadvantage of all taxation schemes is that their effect is not much different from that of price increases. This is quite clear in the case of flat income taxation, which affects the real consumption of the various income groups in much the same way as a rise in prices. The difference between these two ways which is in the back of the mind of people who advance such proposals is probably based on a rather arbitrary assumption that workers will not ask for higher wages when taxed while they usually do it when the cost of living rises, and thus the "vicious spiral" will be prevented. Even granted that the assumption is right, the only people for whom the difference is essential are those with fixed incomes. For workers it does not, of course, matter whether their wages will be cut by 10 percent by taxation or whether prices will rise by 100 percent and wages by 80 percent.[41]

There are, however, other aspects of inflation which should prevent its excessive use for any system of war finance. As Mr. Keynes has pointed out, it is the arbitrariness of the sacrifices imposed by this method which "engages all the hidden forces of economic law on the side of destruction."

> While the process impoverishes many, it actually enriches some. The sight of this arbitrary rearrangement of riches strikes not only at security, but at confidence in the equity of the existing distribution of wealth. Those to whom the system brings windfalls, beyond their deserts and even beyond their expectations or desires, become "profiteers," who are the object of the hatred of the bourgeoisie, whom the inflationism has impoverished, not less than of the proletariat. As the inflation proceeds and the real value of the currency fluctuates wildly from month to month, all permanent relations between debtors and creditors, which form the ultimate foundation of capitalism, become so utterly disordered as to be almost meaningless; and the process of wealth-getting degenerates into a gamble and a lottery. . . . Lenin is said to have declared that the best way to destroy the capitalist system was to debauch the currency. . . .[42]

Inflation is not an evil that terminates in itself "but is followed by even greater evils. . . . Inflation is always followed by deflation and

[41] M. Kalecki, "General Rationing," *op. cit.*
[42] J. M. Keynes, *Essays in Persuasion* (New York, Harcourt Brace and Company, 1933), pp. 77–78.

the ride down is a lot longer and a lot harder and a lot more painful than the short intoxicating ride up." [43] Other authorities have pointed out that "it is now abundantly clear that a complex society such as ours, cannot easily absorb the shocks of deflation. While we do not regard the inflation-deflation sequence as inevitable, we cannot with certainty expect to avoid it. Another great depression, comparable with that of the 1930's, would without doubt bring about some profound changes in our economic and social system, changes which most of us certainly do not regard as desirable." [44]

Excessive inflation creates a feeling of injustice and unrest and endangers the institutional arrangements of society. Excessive taxation, on the other hand, is of paralyzing influence upon the spirit of business. The dilemma exists because the same institutional arrangements which are endangered by excessive inflation require the operation of the profit motive. If this incentive to production is adversely affected by excessive taxation, defense production may not advance as rapidly and as far as it would under the stimulation of a rising level of prices. However, for all practical purposes, the choice is not one between the devil and the deep blue sea, between excessive taxation and excessive inflation, but rather between a moderate increase in prices and a moderate increase in taxes. The degree of moderation which is feasible depends upon the strength and efficiency of measures of direct control. Without effective rationing of consumers' purchases, inflation or taxation is bound to be severe.

The problem of the negative effort of war and of war finance is not a choice between alternative policies but rather the devising of a combination of methods which will secure the most enduring and vigorous war effort. The optimum combination is not the same for all countries but is determined by a host of psychological, institutional and historical factors, imponderabilities often, including the sensitiveness of the population to public control in general and to

[43] Testimony of Secretary Morgenthau, House Committee on Banking and Currency, *Hearings* on the Emergency Price Control Act of 1941, 77th Cong., 1st Sess., September 24, 1941.

[44] Leon Henderson and Donald M. Nelson, "Prices, Profits and Government," *Harvard Business Review* 19: 393–94 (1941).

particular types, the fear and apprehension of inflation, and the willingness to support a vigorous tax policy.[45]

## Prices in Wartime

The phenomena which account for the rise of prices in wartime can be classified as follows. Some prices increase relative to cost, with resulting profiteering; others reflect increases in costs. In practice, it will be extremely difficult to prevent price increases of the one type from affecting other prices since all prices are inter-related. The former type of price increases is stimulated by the inelastic demand for implements of warfare and by the increase in the wage bill resulting in an increase in consumers' demand. The over-all supply is short due to restrictions on imports, and the supply in the consumption sector is short because productive resources are converted to war production.

Price increases of the second type, reflecting increased costs, occur when production is pushed beyond the point where the optimum combination of the factors of production secures low-cost production; when substitutes are produced; when natural resources yielding low returns are taken into utilization; when the productivity of labor declines; when factors press for higher rewards under the impact of increases in opportunity costs and costs of reproduction; when transportation and shipping costs increase under the influence of greater risks, higher insurance premiums, and larger distances traveled.

In the past, wars have been accompanied by large-scale increases in prices. The three peaks of the index of wholesale prices compiled by the United States Bureau of Labor Statistics occurred in conjunction with the War of 1812, the Civil War, and the World War, when the index (1926 = 100) rose to 155 in 1814, 132 in 1865, and 154 in 1920. During the World War of 1914–18, the rise in prices spread over the whole world. This is illustrated in Table 24, p. 135. The advance of wholesale prices in various countries during the present conflict is illustrated in Table 25.

[45] For a discussion of rationing see Chapter 7. The financial aspects of the matter, differences between loans and taxes, etc. are discussed in Chapter 11.

TABLE 24.—WHOLESALE PRICES IN MARCH, 1920, IN PERCENT OF WHOLESALE PRICES IN 1913, SELECTED COUNTRIES *

| | |
|---|---|
| United States | 234 |
| India | 198 |
| Spain | 218 |
| Canada | 258 |
| Netherlands | 283 |
| United Kingdom | 299 |
| Japan | 322 |
| Norway | 351 |
| Sweden | 366 |
| Denmark | 383 [a] |
| France | 555 |
| Italy | 602 |
| Finland | 1,034 |
| Germany | 1,709 |

* Sir Walter T. Layton and Geoffrey Crowther, *An Introduction to the Study of Prices*. Third edition (New York, The Macmillan Company, 1938), p. 140. By permission of The Macmillan Company, publishers.

[a] June, 1920.

TABLE 25.—WHOLESALE PRICES ON OCTOBER 25, 1941, IN PERCENT OF WHOLESALE PRICES IN AUGUST, 1939, SELECTED COUNTRIES *

| | |
|---|---|
| United States | 138 |
| Australia | 123 |
| New Zealand | 126 |
| Mexico | 132 |
| Java | 140 |
| Argentina | 141 |
| Canada | 142 [a] |
| Sweden | 157 |
| England | 159 [a] |
| Switzerland | 203 [b] |

* General Motors—Cornell Weekly Indexes of Wholesale Prices of 40 Basic Commodities. General Motors Corporation, release of November 3, 1941.

[a] Preliminary.

[b] September 27, 1941.

Though the rise in prices is general, there are extreme variations of the extent of the increase in the prices of the various commodities,

reflecting differences in the demand and supply situation. The dispersion of the increase is illustrated in the following table.

TABLE 26.—PERCENT INCREASE IN THE WHOLESALE PRICES OF VARIOUS COMMODITIES BETWEEN 1914 AND 1920, UNITED STATES *

| *Commodities which rose less than the average* | | *Commodities which rose about the average (121 percent)* | | *Commodities which rose more than the average* | |
|---|---|---|---|---|---|
| Phenol | 6 | Steel billets | 118 | Woolen goods (overcoating) | 156 |
| Coffee | 8 | Steel plates | 122 | Cotton, raw | 160 |
| Sulphuric acid | 12 | | | Phosphate rock | 168 |
| Copper ingot | 14 | | | White pine | 177 |
| Menthol | 32 | | | Common brick | 179 |
| Tea | 36 | | | Sugar | 197 |
| Burlap | 47 | | | Wheat flour | 212 |
| Hogs | 74 | | | Ferromanganese | 231 |
| Tobacco | 76 | | | White oak boards | 250 |
| Beans, dried | 86 | | | Leather, glazed kid | 329 |
| Leather, sole | 91 | | | Bituminous coal | 334 |
| | | | | Potatoes | 353 |
| | | | | Indigo paste | 404 |
| | | | | Soda ash | 465 |

* Adapted from *Hearings* before the Temporary National Economic Committee, 76th Cong., 2d Sess., Part 21 (Washington, 1940), p. 11338.

To the extent to which these commodities were subject to price controls, the price changes indicated in the table reflect the success or lack of success of such measures. On the other hand, the closing of the central and Eastern European market was felt severely in the case of some commodities. For example, the price of rubber showed a decline of 56 percent.

Rising prices produce different effects upon different groups of the population. On the whole, the short-run effects are beneficial to the borrowing, entrepreneurial, and agricultural classes, while the increase in the receipts of the wage-earners tends to lag behind the in-

crease in cost of living and wholesale prices. The same is true with respect to other holders of contractual claims. The lending group and the recipients of fixed incomes are in the most unfavorable position.

Wages in wartime are further discussed below, pp. 163–72.

## Price Control in Wartime

In view of the phenomena described in the preceding section, prices must rise in wartime. Since prices express the operation of economic forces, the control over prices themselves is of secondary significance only and should be an accessory of direct controls affecting the operation of the economic forces in a less roundabout manner. If consumers' demand meets an inelastic supply, prices must rise relative to cost to eliminate that part of the demand which cannot be satisfied by the available supply. A rise in prices can only be prevented if this part of the demand is neutralized by saving or taxation. Since, as has been discussed before, not all of it can be neutralized by these means, price control must be supplemented by rationing of consumers' expenditures. In the absence of rationing, policies designed to fix prices below the level they would attain without such fixing, leave demand in excess of supply. The latter then is "rationed" in a disorderly and haphazard manner upon the basis of personal preferences on the part of the sellers; or such consumers who do not have enough time to be among the first in the queues which assemble before the shops have to do without the commodities they desire to purchase.

The situation is different with respect to those prices which are high because of the utilization of monopoly power. If such prices are fixed at a lower level, unit and total profits of the monopolist are consequently lowered, and the monopolist, in order to maximize total profits, is likely to expand his production, gaining through a greater volume of sales what he loses through the reduction of unit profits.

Where the increase in price reflects an increase in cost, a reduction of the price tends to lead to a reduction of production, unless the cost elements whose increase the higher price reflects are likewise reduced. This may be possible with respect to some cost elements but

not with respect to all of them. Where it is not possible, as in case of imported commodities, the government may grant subsidies to reduce their cost. This policy, however, is bound to widen still further the gap between incomes and available goods.[46]

Price control, while reducing wartime profits, cannot protect the civilian consumer to the degree of making more goods available to him than are left after the military requirements have been satisfied. It can, however, if it is supplemented by rationing, secure a more equitable distribution of available goods than would be possible under conditions of constantly rising prices.

To be effective, price control must be comprehensive. If the prices of some goods are controlled while others are left to the determination of the forces of the market, prices will soar in the uncontrolled sector and productive resources be diverted from the controlled to the uncontrolled sector. However, if it is desired to discourage production in specific lines, the fixing of individual prices below the cost of the marginal producer may well lead to the materialization of this objective.

Price control must not only be comprehensive but must extend over all stages from the producer to the consumer. "Regulation of prices at one stage only, whether at the beginning or in the middle or at the end of the process from producer or importer to consumer proved almost always, though in different ways, disastrous [during the World War of 1914–18]. To fix the first-hand price alone might damage the producer or importer without benefiting the public, who would be forced by the middlemen, wholesale and retail, to pay the economic price. . . . To fix the retail price to the public or the wholesale price to the retailer, but not the first-hand price, meant that the middleman got squeezed between the producer or importer demanding the economic price and the retailer or the public offering the official price. . . . For everything that mattered prices or margins of profit had to be fixed at all stages." [47]

The determination of the level at which prices are fixed involves

[46] For an application of this policy, see below, p. 282.

[47] Sir William Beveridge, *British Food Control* (London, Humphrey Milford, 1928), p. 167.

a number of difficult problems. While the controlled price must allow for normal profits, costs are different among the various producers. It thus becomes necessary either to set different prices for the different producers, or to set the price at a level where it covers costs and profit either of the high-cost, average-cost, or bulk-line cost producers. If no differentials are allowed and the price does not cover costs and profits of the high-cost producers, some kind of equalization scheme must be worked out lest these producers cease to operate. The scheme may be financed by contributions of the low-cost producers or by government subsidies, the latter possibly taking "the form of the government's acquiring the plant and leasing it for management purposes to the business concern." [48]

It does not seem desirable to freeze all prices at a given level, because the prices of imported goods and of goods produced under conditions of increasing costs require a separate treatment. General freezing would not only freeze the price level but also relative prices. This would lead to the perpetuation of disproportionalities and maladjustments and prevent such changes in relative prices as the shift to war production requires. The latter consideration is particularly important if certain prices of war-essential goods were, for one reason or another, unduly depressed at the time of freezing. For example, this may have happened owing to the lack of organization of the workers employed in the production of these goods. If then prices are frozen on the unduly depressed level, this will have undesirable effects upon the supply of labor available to the industry. Moreover, general freezing would block competitive reductions of prices, and would make adjustment difficult for retailers when enacted at a time when wholesale prices have advanced more than retail prices.

The following is a survey of the wartime prices policies in Germany, England and the United States. The control measures are most strict in Germany, where a price-stop decree was enforced long before the outbreak of the war in 1939. Under this decree, increases in prices were permitted only if the cost of raw materials had risen. Special war risks or losses were not regarded to justify an increase in price. Increases in wages were likewise blocked, and the payment of

[48] Henderson and Nelson, *op. cit.*, p. 402.

overtime rates discouraged. Prices were held on a level corresponding to the cost of a moderately efficient firm in the particular trade. Firms with higher costs were granted subsidies financed by means of an equalization fund. The latter was composed of part of the differential rents of the firms with less than standard costs. Another part of the rent was left with these firms for the stimulation of their efficiency.

These provisions were made subject to important modifications in 1941. It was then decreed that prices had to be lowered wherever this was feasible owing to reductions in cost resulting from technical progress or if the price as originally frozen allowed for excessive profits, *i.e.*, profits in excess of 2 percent above the central bank discount rate of 3½ percent. Since each firm had to sell at the lowest possible price, differential profits were no longer allowed to accrue but had to be transferred in amounts determined by the firms themselves to a fund designed to subsidize such consumers goods where price increases were impending.

Price control in Germany was implemented by an extremely strict form of rationing of consumers goods. In consequence, the index of wholesale prices rose only from 107 in August, 1939, to 112 in April, 1941, and the index of the cost of living from 127 to 132.[49]

The Prices of Goods Act, enacted in England in November, 1939, authorized the Board of Trade to designate certain goods as "price regulated goods." Such goods were not to be sold at prices higher than they were operative for any particular shop or business on August 21, 1939, unless costs had risen. Increases in fixed unit costs due to a reduction of sales were held to justify an increase in price. The Act placed a ceiling upon net profits per article but did not affect total profits, which were drained by the Excess Profits Tax. How-

[49] In 1933, the indexes of wholesale prices and of cost of living had been 93 and 118, respectively. There have been constantly reports of manipulations with these indexes. Professor v. Hayek "had been told by a person who ought to know that the reason why the cost-of-living index for Germany did not rise was partly because in Germany they acted on a theory which was, to say the least, peculiar—the theory that since, if the price of a peculiar commodity rose, people would be compelled to buy less of it, the weight of that peculiar commodity in the compilation of the index ought to be reduced." Discussion of a paper by N. Crump on "The Economics of the Third Reich," *Journal of the Royal Statistical Society* 102: 209 (1939).

ever, increases in cost had to be added to the basic price, causing profits to fall in percent of selling price.

This Act was amended in June, 1941, when the authorities were given the right to fix maximum prices and to control the prices of services, and enforcement of the Act was made independent of complaints on the part of the consuming public. Other points with respect to which the original Act had proved deficient were as follows: (1) Checking unnecessary sales by middlemen; (2) The high level maintained by some prices already in August, 1939; (3) Checking withholding and hoarding of goods; (4) Dealing with wholesalers and dealers; (5) Checking evasion through conditional, composite, or similar sales.[50] Under the amendment it was possible to fix maximum profit margins. However, the apprehension was expressed that the fixing of such margins was likely to interfere with the entrepreneur's incentive to keep costs as low as possible.[51]

While the enforcement of the Act was under the jurisdiction of the Board of Trade, agricultural prices were controlled by the Ministry of Agriculture; wholesale and retail food prices by the Ministry of Food; industrial raw materials by the Ministry of Supply; and fuels and lighting by the Ministry of Mines.

The development of wholesale prices and cost of living in England is illustrated in the following tables.

Under conditions of rationing, the cost-of-living index understates

TABLE 27.—WHOLESALE PRICE INDEXES, ENGLAND, 1939–41 *

| | *Board of Trade* 1930 = 100 | *Economist* 1927 = 100 | *Statist* 1866–77 = 100 | *The Times* 1913 = 100 |
|---|---|---|---|---|
| August 1939 | 98.1 | 70.3 | 90.4 | 114.5 |
| December 1939 | 122.3 | 91.7 | 120.1 | 142.5 |
| December 1940 | 148.6 | 100.9 | 134.5 | 165.2 |
| August 1941 | 153.2 | 106.4 | 145.1 | 171.4 |

* *Board of Trade Journal*, *Economist*, *Statist*, *Times;* various numbers.

[50] London *Times*, June 20, 1941.

[51] "The New Bill on Price Control," Institute of Statistics, Oxford, *Bulletin* 3: 199–201 (June 28, 1941).

TABLE 28.—COST-OF-LIVING INDEX, ENGLAND, 1939–41
(1914 = 100) *

| | *All items* | *Food* | *Rent and rates* | *Cloth-ing* | *Fuel and light* | *Other items* |
|---|---|---|---|---|---|---|
| September 1939 | 155 | 138 | 162 | 205–10 | 180–85 | 180 |
| January 1940 | 174 | 157 | 162 | 250 | 200 | 190 |
| January 1941 | 196 | 172 | 164 | 330 | 223 | 222 |
| September 1941 | 199 | 166 | | | | |

* *Ministry of Labour Gazette*, various numbers.

the decline in real satisfactions derived from the expenditure of a given amount of money. This is more fully discussed below, p. 166.

In the United States, attempts to influence individual prices in a more formal manner were undertaken in February, 1941, when an order was issued by the price stabilization division of the Defense Commission placing ceilings on the price of second-hand machine tools. The sanctions to which the order referred in a rather vague manner consisted of "full publicity" before Congress and the public and the "full powers of the government." This action had been preceded by a number of statements of the Commission or of individual commissioners suggesting that the prices of certain commodities were unduly high.

The sanctions of actions of the defense authorities pertaining to the control over prices became somewhat more concrete when the President created the Office for Price Administration and Civilian Supply in April, 1941. This agency absorbed the Price Stabilization and Consumer Protection divisions of the Advisory Commission to the Council of National Defense. Later on the functions of both agencies were divided again between the Office of Price Administration (OPA), and the Division of Civilian Supply, which was transferred to OPM.

The functions of the Office for Price Administration and Civilian Supply (OPACS) included the following specific tasks: (1) The prevention of unwarranted price increases, rising costs of living, profiteering and inflation; (2) The prevention of speculative accumulation

and hoarding of commodities; (3) The stimulation of adequate supplies for civilian consumption after military requirements had been met, and the allocation of the civilian supply among competing uses; (4) The determination of maximum prices for finished goods or for any factor of production.

In the enforcement of its actions the agency had to depend largely upon the voluntary coöperation of the businesses concerned. Sanctions were available but were too cumbersome to be of practical usefulness. They consisted of the general authority of the President to place compulsory orders and to commandeer under the provisions of the Selective Service and National Defense Act; to advise the Interstate Commerce Commission, which was authorized to establish priorities in transportation matters, to decline transportation facilities to concerns failing to comply with the price control measures; and to requisition materials designed for export but held up under the export control regulations.[52] None of these provisions was invoked in any single instance. Considering the absence of efficient sanctions, the activities of OPA were highly successful. Conferences were held with the representatives of firms or industries which intended to increase prices, and formal schedules of prices were established only in case of failure of such conferences. In a few cases the schedules represented the "freezing" of prices at a certain date. All in all, the prices of 24 commodity groups had been placed under schedules by September, 1941. The commodities were as follows: second-hand machine tools; aluminum, scrap and secondary; zinc, scrap and secondary; iron and steel scrap; bituminous coal (revoked); iron and steel products; combed cotton yarn; nickel scrap and secondary materials; hides, kids and calfskins; pig iron; cotton textiles (grey goods); brass mill scrap; Douglas fir plywood; raw silk; copper; raw sugar; pig tin; burlap; Southern pine lumber; copper scrap; formaldehyde; Pennsylvania grade crude oil; rayon grey goods; and washed cattle tail and winter dog hair.

OPA did not interfere with the formation of wages but exerted a measure of indirect control over this cost item by refusing to regard increases in wages as justification for subsequent increases in prices.

[52] These provisions are described more fully below, pp. 288ff.

This policy was held to put "collective bargaining in its proper place, with the management and unions deciding how much of the profits shall go to the stockholders and how much to the workers." [53]

OPA was unable to prevent the sharp advance in the prices of agricultural products which were bolstered by congressional and administrative policies and did not increase as the result of specific conditions of scarcity. In August, 1941, the index of agricultural prices reached 131 percent of the 1910–14 average and restored the ratio of agricultural prices and prices paid by farmers to 100 percent, or "parity." Wheat in Chicago was 50 to 58 cents higher than wheat in Winnipeg, Buenos Aires, or Australia. Many prices of individual agricultural products were far in excess of the "parity." The exponents of the agricultural interests, however, were no longer satisfied with full parity but set as new objective agricultural prices exceeding parity by 10 or 20 percent.

Price control policies were implemented by vigorous activity on the part of the Department of Justice in the enforcement of the anti-trust laws.[54] Ocean freight rates were under the control of the Maritime Commission.

Gradually the necessity to place the enforcement of price controls upon a more secure basis increased. It was suggested, for example, to punish persistent violators by revoking municipal licenses wherever these were required for commercial enterprises. In August, 1941, a comprehensive price control bill was placed before Congress which was designed to supply the authorities with the proper statutory basis for their activities. By that time, the United States Bureau of Labor Statistics index of wholesale prices had increased from 74.8 in August, 1939, to 90.6 (1926 = 100), and a new index of the prices of 28 basic commodities had risen from 100 to 152. This bill was still before Congress at the time of the outbreak of the war in December, 1941.

[53] New York *Times*, June 29, 1941.

[54] Some prices actually declined in 1940 or 1941, reflecting the more complete utilization of existing capacities or closer scrutinization. Among the commodities whose prices declined were such important items as aluminum and industrial power.

# CHAPTER VI

## LABOR PROBLEMS IN WARTIME

Labor's full participation in the war effort requires measures designed to facilitate the utilization and expansion of the available labor supply, and terms of employment securing the largest possible output as required by total war. Measures securing an adequate supply of labor and favorable terms of employment may originate in formal or informal agreements on the part of employers and employees, or they may be brought about by government action.

The present chapter is introduced by a brief survey of the experience gained during the World War of 1914–18. It then goes on to discuss the specific issues confronting employers, employees and the government during the present conflict.

In Britain and the United States, the World War of 1914–18 led to a temporary increase in the membership and strength of the labor movement. During the War, British trade union membership increased by 100 percent. Organized labor was called to the counsels of government and assumed numerous responsibilities. Some of the changes were of lasting effect. The machinery for the voluntary negotiation of industrial disputes, which had been called into existence under the influence of the war emergency, was extended during the postwar period. Collective bargaining became more fully accepted among employers. The regulation of wages, which under the law of 1909 was applicable only to a few "sweated" trades, spread over a large number of industries. In the United States, the development resembled the British, notwithstanding the different stage of development of labor legislation and collective bargaining in this country. Trade union membership increased from 3,100,000 in 1917 to 4,200,000 in 1919 and continued to increase until 1920. The requirements of the war period led to a number of great improvements of the newly created public employment service. The National War Labor

Board affirmed the right of workers to organize and prevented employers from discriminating against the members of trade unions. Organized labor gained representation on the boards and commissions of the government. Samuel Gompers, the President of the American Federation of Labor, was made a member of the Advisory Commission of the Council of National Defense.

This trend continued during the World War of 1939. Trade unions made heavy inroads into fields hitherto closed to them. The United Automobile Workers, for example, increased the membership from about 30,000 in 1936 to over 250,000 in 1940 and 530,000 in 1941, when its collective agreements covered over 700,000 workers in nearly 1,000 plants. The Ford Motor Company, a bulwark of anti-union policies for many decades, signed a closed-shop agreement, throwing the "check-off" of union dues into the bargain. All in all, the number of trade-union members rose from 8,300,000 in 1939 to 11,000,000 in 1941, with 5,000,000 each in the unions affiliated with the American Federation of Labor and the Congress of Industrial Organizations.

The progress of democracy had greatly strengthened the membership and political power of the labor movement during the years preceding the outbreak of the war in 1939, vesting a good deal of direct responsibility for the successful execution of the war and defense effort in the leaders of organized labor. In many respects, the position in which they found themselves resembled that of the business and industrial leaders. It took time before the old incentives whose operation had been geared to conditions of scarcity and restrictionism adjusted themselves to the new setting. Trade-union leaders, "instead of insisting on an all-round control in which they take their share," were too often induced "to safeguard the interests of those whom they are supposed to represent in a defensive manner. . . . They tried to maintain sectional collective bargaining instead of insisting on controlling and planning." In Britain, "they never realized their unique opportunity" when admitted to government. "Step by step their influence waned."[1] It was also not clearly recognized that the new situation called for a new definition of objectives and programs of organized labor. Under conditions of inelastic supply of consumers

[1] T. Balogh, in the *New Statesman and Nation*, April 19, 1941, p. 419.

goods, bargaining for higher wages no longer made available a larger volume of consumers goods to the workers as a group.[2] By bidding up the prices of consumers goods, working people, desirous of obtaining more consumers goods, transferred the increment in money wages to the recipients of profits, without being able to obtain a larger volume of goods than they would have been able to obtain without the wage increase. The traditional union policies of wage bargaining had a functional meaning in times of deficient purchasing power. Now there was too much of it. To make the continuation of these policies meaningful, they had to be blended by a vigorous program of saving among the working people. This was the only way to prevent the appropriation by the profit-receivers of the increment in money wages, and it was to be accomplished by voluntary saving as well as by rationing of consumers' expenditures. By deliberately postponing the consumption of increases in money wages, workers could secure for themselves a share in the war debt and in future consumption, while attempts to increase current consumption were not only vain under the conditions of inelastic supply, but increased automatically the share of the profit-receivers in the war debt and in future consumption. Labor's own interests required the saving of the gains from the wage bargain. By saving it, inflation could be minimized, and the acquisition of a larger share in the national debt by persons with small means, whose propensity to consume was bound to be high in normal times, would facilitate the solution of the problems of the postwar period.

It was expected that the war would lead to a revival of the interest in union-management coöperation, which had been started in the Rock Island Arsenal during the World War of 1914–18 and was responsible for the records in production attained during these years. As has been pointed out, "the pressing production needs of the defense program make union-management coöperation more urgent than ever before. It must be borne in mind that industry is confronted with the problem not only of greatly increasing production, but of making new kinds of articles, things which the particular plants in many cases have never produced. Furthermore, industry will be com-

[2] See below, pp. 169f.

pelled to make large increases in its supervisory staff. It will be necessary to advance to supervisory positions many men who have never had such responsibility. The most overworked part of industry during the next two or three years will be the supervisory staffs, from straw bosses and foremen up to presidents. These men will have no forty-hour week and they will not get time and one-half for overtime and Sundays. They will be able to give attention to only the most urgent problems and trouble spots. They will need all the good ideas they can get on introducing short cuts and eliminating 'bugs' from production, and the men at the machines and at the benches are certain to have many such ideas. Mobilizing the interest and intelligence of these men is an important step in developing the efficiency of the defense program." [3] Union-management coöperation requires an assured status for the union and cannot be accomplished in an atmosphere of distrust and lack of confidence.

## The Supply of Labor

*The World War of 1914–18.*—In the United States, the supply of labor during the World War of 1914–18 was organized by the Federal Employment Service. When shortages of labor became more serious, and competition among employers led to an increase in the turnover of labor with its harmful effects upon productivity and output, employers were required to recruit unskilled labor exclusively through the Federal Employment Service. This was not provided before 1918. The Employment Service allocated the workers among the various enterprises upon the basis of priority quotas, giving preference to the essential industries. To drain available labor reserves and to facilitate the shift from the non-essential into the essential occupations, the so-called Work-or-Fight Order was promulgated in 1918. This order required all men of draft ages engaged in occupations classified as "non-productive" either to find "productive" employment or to have their draft deferments or exemptions withdrawn.

[3] Sumner H. Slichter, *Economic Factors Affecting Industrial Relations Policy in National Defense* (Industrial Relations Monograph No. 6, New York, Industrial Relations Counselors, 1941), pp. 98–99. See also the same author's *Union Policies and Industrial Management* (Washington, The Brookings Institution, 1941).

Various state and municipal statutes made it a duty of unemployed persons to accept employment assigned to them. West Virginia, for example, passed an act in 1917, providing that men of working age who failed to work 36 hours a week were to be held guilty of vagrancy unless they were registered for work with the proper state agency.

In England, the work of the Labor Exchanges was supplemented by numerous other measures. There was

> a plan of War Munition Volunteers—men who agreed on special terms to go wherever they were wanted. There was the business of issuing badges to men on important work, to save them from being badgered and white-feathered to enlist . . . ; later came the more ticklish task still of "debadging." There was a special department for securing "release from the colors" of men of special skill who had enlisted in the first months of war and whose work was now vital for making munitions. . . . The Munitions of War Act . . . established a system of "leaving certificates," making it illegal for an employer to engage a workman unless the latter had a certificate from the last employer agreeing to his leaving. The Munitions of War Act was not a popular Act and the part about leaving certificates—the "slavery clause" as it came to be called—was the least popular part of it, and was withdrawn in October, 1917.[4]

Toward the end of the war, the conscription of labor came to be discussed in all countries. The voluntary system which existed in France, England and the United States had been implemented by a large number of controls. However, Germany was the only power which had established an outright system of conscripting labor at an early time. Under the act of December 5, 1916, all male civilians between the ages of 16 and 60 were required to render compulsory services.

*The present situation.*—Policies designed to facilitate the expansion and conversion of the available labor force must draw upon the various labor reserves enumerated in Chapter 3, and stimulate the mobility of workers from the non-essential to the essential sector.

The measures include appropriate union policies with respect to entrance requirements and dilution; the fractionalization of jobs; up-

[4] Sir William Beveridge, *Some Experiments of Economic Control in War-Time* (New York, Oxford University Press, 1940), pp. 4–5.

grading and training programs; prevention of discrimination against certain types of labor; and governmental facilities for job specifications, reporting and recruitment. Once these measures have been applied, there is the tendency to have recourse to stricter types of control.

Trade unions must abandon policies which restrict their membership and must permit the "dilution" of the labor force. If these matters are handled properly, there is no need for restrictions on the closed shop, provided the unions apply the necessary restraint with respect to the amount of the initiation fee charged to new members. On the whole, the fees of the new unions are lower than those of the old ones, with their membership concentrated in higher-paid positions and with special facilities providing sickness and unemployment insurance benefits and the like. The difference will be more pronounced where the new union competes with an old one in the same field.

The initiation fees of some representative A. F. of L. unions are as follows: International Brotherhood of Electrical Workers (New York local), $100; International Ladies Garment Workers Union, from $1 for the lowest-paid unskilled workers to $100 for cutters; International Longshoremen's Association, $25; International Typographical Union, from $32 to $40. C.I.O. unions charge the following initiation fees: Steel Workers Organizing Committee, $3; United Automobile Workers, $2; Amalgamated Clothing Workers, not in excess of $10; Transport Workers Union, $3.25; United Electrical, Radio, and Machine Workers, from $2 to $7.[5] Much has been made of the initiation fees charged by trade unions in connection with the defense camp construction program. With two exceptions, there was no increase in initiation fees on that occasion, and there were instances in which fees were reduced. Transfer fees, to be paid by union members desirous of taking jobs under the jurisdiction of another local or a sister-union, were waived in most cases. However,

[5] "How Much To Be a Union Man?" *Business Week*, August 17, 1940. Information presenting an over-all picture of initiation fees is extremely scarce, possibly because of the lack of national uniformity. Carroll R. Daugherty remarks that "within the last thirty years the number of unions having excessive entrance fees and other devices of exclusion has been declining." *Labor Problems in American Industry*, Fifth edition (Boston, Houghton Mifflin Company, 1941), p. 466.

it was pointed out that the payment of customary initiation fees seemed questionable in view of the fact that the purposes of the payment were in part invalidated by the specific nature of the jobs taken under the camp and cantonment construction program. A great many of the new union members were required to make payments for union benefits ordinarily enjoyed for a life-time, while actually they would enjoy these benefits only for a few months. Moreover, the competence of many new members was below union standards; in numerous cases, their competence was not determined by the union but by the employer on the job, and the union was unable to grant protection if competence was found to be unduly low. These are specific functions of the unions for which the initiation fee is generally regarded as return payment. On the whole, however, it was said at the time that "most of these charges are very much exaggerated, and in some instances pure fabrication. While abuses have unquestionably occurred, they are exceptional, and the building trades' unions appear to be taking steps to correct them." [6]

The task of increasing the number of workers available for operations requiring special skill was most urgent, since it was there that labor shortages developed first. To meet these shortages it did not suffice to train workers in the special skills where they were most urgently needed. Training of this type often requires a considerable length of time. In order to speed up the process of meeting shortages of skilled labor, it became necessary to fractionalize operations hitherto performed by one worker and to break them down into a number of simplified operations requiring a smaller degree of skill.

Upgrading, which for long had been a widely used method of meeting the needs for skilled labor in American industries, became more formalized and subject to deliberate policies. These policies were supplemented by an ambitious training program covering about 1,000,000 persons in June, 1941. There were 26 training programs offered to civilians through federal agencies. The main types of training were: (1) College courses, particularly for engineers and the supervisory staff; (2) Refresher courses in vocational schools, for

[6] "Trade Union Practices Governing Initiation Fees on Defense Construction Projects," January 28, 1941. Typewritten copy on files of Research and Statistics Division, Bureau of Employment Security, Washington, D.C.

"rusty" workers and to facilitate upgrading. These courses turned gradually into courses for inexperienced youth; (3) Training within the factory.

To secure the full absorption of all available labor, it became necessary to caution industry against undue discrimination against the 4,741,971 aliens in the United States. While federal law prevented only the access of aliens to plans or specifications or work under construction in the manufacture of aircraft or parts or in manufacture under "secret, confidential or restricted government contracts," the practices of many employers went far beyond these requirements. In some cases, employment was refused not only aliens but naturalized citizens and even first-generation Americans of certain foreign extraction. There were even instances where the grandparents had to be American-born. Restrictions were reported of industries only remotely associated with the actual production of finished defense goods. The extent of these practices was revealed in a study of the Social Security Board, pointing out that "at a time when employers are searching for workers in certain occupations, aliens, naturalized citizens and native-born American workers, who are qualified and available, are idle." [7] Subsequently the War Department drew the attention of employers to this labor reserve.

Further detrimental effects upon production and national morale were caused by widespread complaints about the discrimination against the employment of colored workers. These complaints led to action on the part of the President and to arrangements in defense contracts designed to prevent such discriminations.[8]

Training and recruitment of workers was facilitated through specification and job-reporting services. A list of specifications prepared in the summer of 1940, contained detailed descriptions of the skills required for 500 defense jobs, and served as basis of a nationwide system of labor clearance and transfer. An elaborate system of regional job-reports helped to make available the labor reserves of one region to others.

[7] Federal Security Agency. Social Security Board. Bureau of Employment Security, *Labor Shortages and the Restriction of Employment to Citizen Workers* (Washington, January 30, 1941).

[8] *Defense*, July 1, 1941.

Under the price system, the labor supply is allocated to the various enterprises by means of wage payments and other inducements. Keen competition among employers who bid up the price of labor increases the turnover of labor and is of detrimental effect upon productivity and output. To prevent this, all holders of defense contracts were requested early in 1941 to recruit workers through the Federal Employment Service and not to engage in nationwide advertising for labor and unnecessary "scouting." These practices, it was said, "result in unnecessary migration of labor, high rates of labor turnover, disturbances of established labor standards in local areas, and other wasteful and inefficient practices which the nation cannot afford." [9]

Until December, 1941, there was little control over the allocation of labor among essential and non-essential enterprises outside the operation of the price system and such shifts to the essential sector as were facilitated by the scarcity of materials in the non-essential sector.

In England, direct controls over the allocation of labor had progressed rather far. As early as September, 1939, the Control of Employment Act authorized the Minister of Labor to prevent the diversion of workers from essential occupations by making orders prohibiting specified industries from advertising vacancies and engaging specified classes of workers without the consent of the Minister. The consent to the engagement of a worker was to be granted unless the refusal was accompanied by suitable alternative employment. The first order under this act, made seven months later, prohibited builders and contractors from advertising for carpenters, joiners or bricklayers. During the progress of the war, this measure was supplemented by a number of "Essential Work Orders," which the Minister of Labor was authorized to issue. Under these orders, undertakings were scheduled as engaged in essential work covering about 3,000,000 people in the fall of 1941.[10] Workers in scheduled undertakings could neither leave nor be dismissed, except for serious misconduct, without a written permission of the authorities. Before making an order, the Minister had to be satisfied that workers in the

[9] *Ibid.*, March 4, 1941.
[10] Institute of Statistics, Oxford, *Bulletin* 3: 258 (August 9, 1941).

scheduled undertakings were adequately protected with respect to terms of employment, guaranteed week of work, and welfare and training facilities. Essential work orders were issued for ship-building and ship-repairing, the merchant navy, coalmining, building, civil engineering, and the larger trucking enterprises. Dock labor was dealt with under a special scheme providing for the pooling of such workers.

As could be expected, not all effects of the controls were desirable. It was observed, for example, that the restrictions on labor's mobility, especially on employers' new hiring, induced employers to retain labor of which they did not make proper use. Some effects of the essential work orders, on the other hand, were unsuited to encourage the desired shift of workers to essential occupations. The attractiveness of war industries was not enhanced when they were scheduled under an essential work order, particularly since wage payments were dependent upon the bargaining strength of trade unions. Hence, there were complaints that "war workers may find themselves underpaid by Order, if by historical accident their occupation has not acquired a powerful trade union, . . . while the staffs of beauty parlours and millinery establishments can be paid whatever the traffic will bear. While the employees of essential industries must remain at their present jobs, workers in retail trade and domestic service can wander wastefully at will from post to post, without any pressure or inducement to enter the war effort." [11]

The conscription of labor was made possible by a regulation of May 22, 1940, authorizing the Minister of Labor to "direct any person in the United Kingdom to perform such services in the United Kingdom as may be specified by the direction, being services which that person is, in the opinion of the Minister, capable of performing." The first order under this regulation prohibited the engagement of workers in the building industry, civil engineering contracting industry and general engineering except through the services of an employment exchange or under an arrangement between employers' organizations and trade unions. Men employed in coalmining and

11 "Essential Work and Wages," *Economist*, July 19, 1941, p. 72.

agriculture were to be engaged only for work in these industries. Subsequent orders provided for the registration of specified classes of workers. In 1941, men between the ages of 41 and 51, who had not been called to military service, and women between the ages of 20 and 41 were required to register in order to make their services available for the war industries.

Germany had conscripted labor long before the outbreak of the war in 1939. The authorities can require the services of any resident between the ages of 15 and 70 and can provide for compulsory training. Labor in essential occupations had been immobilized by preventing wage differences and by direct controls.

## The Terms of Employment

The principles guiding the terms of employment in American defense work were expressed in a statement adopted by a unanimous vote of the National Defense Advisory Commission in August, 1940. The labor policy as expressed therein called for compliance with all federal, state and local statutes protecting labor. The statement, which was transmitted to Congress by the President, reads as follows:

In order that surplus and unemployed labor may be absorbed in the defense program, all reasonable efforts should be made to avoid hours in excess of 40 per week. However, in emergencies or where the needs of the national defense cannot otherwise be met, exceptions to this standard should be permitted. When the requirements of the defense program make it necessary to work in excess of these hours, or where work is required on Saturdays, Sundays or holidays, overtime should be paid in accordance with the local recognized practices.

All work carried on as part of the defense program should comply with federal statutory provisions affecting labor wherever such provisions are applicable. This applies to the Walsh-Healey Act, Fair Labor Standards Act, the National Labor Relations Act, etc. There should also be compliance with State and local statutes affecting labor relations, hours of work, wages, workmen's compensation, safety, sanitation, etc.

Adequate provision should be made for the health and safety of employees.

As far as possible, the local employment or other agencies desig-

nated by the United States Employment Service should be utilized.

Workers should not be discriminated against because of age, sex, race or color.

Adequate housing facilities should be made available for employees.

The Commission reaffirms the principles enunciated by the Chief of Ordnance of the United States Army, during the World War, in his order of November 15, 1917, relative to the relation of labor standards to efficient production:

"Every attempt should be made to conserve in every way possible all of our achievements in the way of social betterment. But the pressing argument for maintaining industrial safeguards in the present emergency is that they actually contribute to efficiency." [12]

The memorable General Order No. 13 of the Chief of Ordnance, to which the last paragraph of the Commission's statement referred, had pointed out in another passage that "in view of the urgent necessity for a prompt increase in the volume of production . . . , vigilance is demanded of all those in any way associated with industry lest the safeguards with which the people of this country have sought to protect labor should be unwisely and unnecessarily broken down. It is a fair assumption that for the most part these safeguards are the mechanism of efficiency."

England, during the present war, has indeed made progress in the expansion of social legislation.[13] It is, however, questionable whether the statement of labor policy as announced by the Defense Commission during the fall of 1940 did not call for a new definition of objectives when available labor reserves became gradually exhausted with the progress of the defense program. One year later it seemed that the situation in many lines of industrial production did not call for the avoidance of weekly working-hours in excess of forty but did require the vigorous stimulation of longer working hours.

In practice, however, the number of working hours had been

[12] 76th Cong., 3rd Sess., H.D. 950 (1940).

[13] Measures enacted in 1940–41 included a reduction of the age of women at which they are eligible to receive old-age insurance benefits; increases of unemployment-insurance benefits and extension of the coverage of the system to white-collar workers earning as much as £420 per year; increases in allowances under workmen's compensation; provisions of milk for mothers and children; improvements in agricultural wages, in allowances for men on services, and the abolition of casual labor at the docks.

gradually extended. A study of vital defense industries, covering 394 plants, indicated that in December, 1940, 60 percent of the workers worked overtime at an average of 9.1 hours a week. Fewer than 20 percent of the plants studied were using only one shift of workers a day; 142 were still working five days a week; 68, 5½ days; 116, six days; and 68, seven days. Thus, "more than half of the plants covered were operating only 5 or 5½ days per week. In addition, plant capacity was not being utilized to any great extent beyond a single shift per day, as evidenced by the fact that 75 percent of the wage earners in the surveyed plants were employed on the first or day shift."[14] In the spring of 1941, OPM commended a four-shift week of 160 hours. This stabilization of the forty-hour week for the individual employee would have left only eight hours per week for overhauling plant and machinery. Under this plan, employees were to rotate on the various shifts, each receiving an equal share of the overtime pay for Saturday and Sunday and extra shift work. The entire overtime pay was to be put in a pool and divided pro rata among all the employees.[15] There was little doubt, however, that three eight-hour shifts instead of four six-hour shifts would have had an effect similar to an increase in the available supply of skilled labor by 25 percent.

On the average, weekly working hours in manufacturing had risen from 38.0 in September, 1939, to 40.9 in September, 1941. In June, 1941, three strategic defense industries operated in excess of fifty hours per week per wage earner; the numbers were 51.9 hours for machine tools; 51.5 hours for firearms; and 50.4 hours for machine tool accessories. Other important defense industries operated at the following levels: screw machine products, 48.7; instruments, 46.5; shipbuilding, 45.3; brass, bronze and copper products, 44.8; aircraft, 44.7; explosives, 44.6; ammunition, 43.1; aluminum, 42.2; optical goods, 41.5; and smelting and refining (copper, lead and zinc), 40.5.[16]

In connection with the forty-hour week, allusions were occasionally made in some quarters to an alleged similarity with the forty-

[14] Morris Levine, "Extent of Week-End Shut-Downs in Selected Defense Industries," *Monthly Labor Review* 52: 539 (1941).

[15] *Defense*, May 13, 1941.

[16] United States Department of Labor, release of August 16, 1941.

hour week in France, which was said to have been responsible for the defeat of that country. However, the Secretary of Labor pointed out that "the French forty-hour week was a rigid statute which prohibited all overtime beyond forty hours, not only for the industrial worker but also for the entire industrial establishment. It was so difficult to obtain an exemption from the government to permit any variation from this inflexible short work week that as a practical matter French industry was on a forty-hour week.

It is obvious that production on that basis cannot equal production on a three-shift basis of forty hours each shift. The American hour laws, however, were very carefully framed to avoid this rigidity and any employer in the land can automatically work his employees as many hours beyond forty a week as he cares to without asking permission of anybody so long as he pays the overtime rate of time and one-half." [17] It was also pointed out that short hours of work increase the productivity of labor, maintain the health of the working population and reduce industrial accidents and absenteeism on account of sickness. On the other hand, it cannot seriously be maintained that a decline in productivity will begin when forty hours are exceeded. It is only when hours are unduly lengthened that productivity declines, and when hours become very long, total output will actually decline. Optimum hours are such hours as result in the largest total output. They vary in the different industries, but are generally far in excess of forty. In most operations they may lie between forty-eight and sixty hours.[18] Under a three-shift system, the optimum may be fifty-six hours.[19]

British experiences during the World War of 1914–18, when the hours of munitions workers were increased to 70–90 hours a week, indicated the undesirable effects of excessively long hours. It was found that a twelve-hour day produced no more than a ten-hour day. "Reduction from 58.2 to 51.2 in the actual weekly working hours of a group of fifty-six men, engaged in the heavy labor of

[17] Address before the Seventh National Conference on Labor Legislation, December 9, 1940.

[18] Lloyd G. Reynolds and Associates, *Labor and National Defense* (New York, Twentieth Century Fund, 1941), p. 51.

[19] *Economist*, May 31, 1941, p. 725.

sizing fuse bodies, increased the total output by 22 percent." [20] Upon the basis of these findings, the Health of Munitions Workers Committee recommended the reduction of working hours and maintenance of the Sunday rest and ordinary holidays. In its Interim Report of 1917, the Committee warned that "the country cannot afford the extravagance of paying for work done during incapacity from fatigue, just because so many hours are spent on it. . . . Misguided efforts to stimulate workers to feverish activity in the supposed interest of output are as useless as would be the cheers of partisans encouraging a long-distance runner to a futile sprint early in the race." [21]

At the beginning of the present war, there was some inclination to relax the British factory legislation protecting the working hours of women and children. The Home Secretary was authorized to permit longer hours in special cases. Under the influence of the events in France in the summer of 1940, hours were considerably lengthened, with not altogether favorable effects. In July, 1940, the Minister of Labor and National Service circulated some notes on "Hours of Work and Maximum Production," drawing attention to the necessary reduction of the then prevailing long hours of work in the interest of maximum output. It was pointed out that "the continuation of seven day working, with an average working week of between 70 and 80 hours, would quickly cause a rapid decrease in individual productivity owing to the abnormal strain. . . . As soon as the necessary labor force was available a permanent scheme would have to be instituted with the object of reducing the working week to the optimum level of 55 or 56 hours and increasing the number and productivity of man hours." [22] The matter of working-hours was further investigated by the Select Committee on National Expenditure. The Committee noticed that the reduction of unduly lengthened hours increased output, but that there was a lag corresponding to the recuperation of energy, and that reduction to optimum hours failed to effect the required increase in output, if the general health was

[20] Industrial Health Research Board, *Industrial Health in War* (Emergency Report No. 1, London, H.M.S.O., 1940), p. 3.

[21] Quoted *ibid.*, p. 2.

[22] John Price, *Organised Labour in the War* (New York, Penguin Books, 1940), p. 139.

undermined under the influence of heavy overtime for long periods. Working hours, the Committee held, should be reduced to an average of sixty per week with the aim of cutting them to fifty-five or fifty-six. The Committee also declared itself in favor of the three-shift system.[23] In a subsequent report, the Committee aired the complaints about increasing absenteeism in the war industries, particularly in aviation. This was attributed to changes in the residence of the workers and transportation difficulties and to the great strain to which the workers were exposed under the influence of the war. It was also pointed out that "when a man can earn double time on Sunday it is not surprising that, if he is tired, he will absent himself on a week-day with the feeling that he is not greatly the loser on balance." [24] Since the majority of the aircraft firms had stated, that, on balance, Sunday work was of no value, the Committee, in its report, discouraged such work, except for maintenance and repair, and Sunday work was subsequently practically eliminated in England. To reduce absenteeism in the mines, an attendance bonus was provided, to be forfeited by any miner who did not present himself for work on every day during the week when the pit was open.

*Fair Labor Standards Act.*—Upon the basis of the foregoing discussion an attempt will be made to appraise the Fair Labor Standards Act of 1938 in the light of the requirements of the defense program of the United States. This act does not limit the working hours to forty but requires employers to pay overtime at a rate of at least one and one-half for weekly hours in excess of forty. Advocates of a relaxation of the act argued that the overtime pay would discourage employers from expanding the number of working hours beyond forty, that, in some instances, overtime pay may be an inducement to slow up the work, and that the payment of overtime rates would lead to an increase in prices. Much was also made of the motive for the enactment of the Fair Labor Standards Act, which was said to have been designed to facilitate the dispersion of work during times of unemployment.

[23] *Third Report* from the Select Committee on National Expenditure (London, H.M.S.O., 1941).

[24] *Fifteenth Report* from the Select Committee on National Expenditure (London, H.M.S.O., 1941), p. 8.

Advocates of the maintenance of the act pointed out that full employment of all available workers could only be secured if employers were induced to spread the work among as many workers as were available. While this argument lost weight under the influence of constantly decreasing labor reserves, other arguments were of a more lasting significance. Overtime rates, it was held, would prevent employers from exceeding the optimum working hours. There is, however, little doubt that the optimum is far in excess of forty hours for the great majority of all occupations. It was further argued that "in the absence of overtime rates, there is a disposition among less thoughtful employers to permit working hours to adjust themselves to production schedules. The worker's life becomes irregular and unpredictable. Overtime rates provide such employers with a strong reason for attempting to regularize production or, where this is impossible, to compensate the worker for the enforced irregularity of his existence. Both of these results contribute to national productive efficiency by improving workers' attitudes and diminishing the tendency toward costly rates of labor turnover." [25] As long as union-management coöperation makes no further headway, there is little doubt concerning the validity of this argument. Still more important was the fact that the overtime rates stimulated the shift of workers to defense industries and away from non-essential industries which were short of material and unable to offer work in excess of forty hours.

Does overtime pay stimulate inflationary tendencies? It has been argued that there is such stimulation, owing to the increase in purchasing power in the hands of the worker. However, the additional stimulus is likely to be outweighed since overtime pay tends to retard the rise in regular base wage rates. "In other words, it makes possible high weekly earnings without a change in base rates." [26] Does overtime pay increase costs and, thus, induce the employer to charge higher prices? Often economies resulting from increased production will more than make up the extra labor cost, and the continuous opera-

[25] Robert R. R. Brooks, *National Labor Policy and Total Defense* (Washington, American Council on Public Affairs, 1941), p. 5.

[26] Sumner H. Slichter, "National Labor and Production Policies," Academy of Political Science, *Proceedings* 19: 78 (1941).

tion of machines is bound to reduce fixed unit cost. The percent by which the wage bill increases under the influence of overtime pay is rather small, and the percent increase in total cost still smaller.[27] Whether employers will be induced to increase the price depends upon their specific method of costing. If they would base their prices upon marginal cost, there would be some increase in prices and a considerable increase in profits. However, recent studies indicate that the assumption that prices are usually set at a level based upon average cost at some customary output is more realistic.[28] The effect of overtime pay upon average cost is very slight; in the automobile industry, for example, the increase has been estimated at 2 percent.

*Walsh-Healey Act.*—The Public Contracts Act of 1936, popularly called the Walsh-Healey Act, contains provisions designed to grant protection to the employees of manufacturers and dealers doing business with the United States under contracts in excess of $10,000 per year. The provision of this act which was subject to most criticism required employers to pay wages not less than the prevailing minimum wage for like work in the locality where the supplies were produced. This provision reaches farther than the minimum wage provision of the Fair Labor Standards Act, since it extends to industries paying wages higher than 40 cents an hour.

The objections which were advanced against the maintenance of this provision had no special relevance to production under the defense program. It was argued, for example, that the act tended to discourage bidding on government contracts and that it confronted the employer with difficult problems when he had to differentiate his wage payments among the employees doing work on public contracts and those engaged in other commercial work.

Objections to the minimum wage features as such could not well be expected, both with respect to the Fair Labor Standards Act and the Walsh-Healey Act. As has been pointed out,

[27] Col. Philip B. Fleming, Wage and Hour Administrator, pointed out in a radio address of January 8, 1941, that overtime pay may increase wages by about 8 percent and total cost by a smaller percentage depending upon various circumstances.

[28] R. L. Hall and C. J. Hitch, "Price Theory and Business Behavior," *Oxford Economic Papers* 2: 12–33 (1939).

the Fair Labor Standards Act sets minimum wages below which the maintenance of the efficiency of a working family is difficult to conceive. Upon the basis of the highest hourly rates possible under the Act, and assuming a full 52 weeks of employment, a worker's annual income is $832. The rates established under the Walsh-Healey Act, which has a more direct bearing upon defense industries, vary from a low of $12 a week to a high of $27 a week. Again making the entirely unwarranted assumption of a full 52 weeks of employment, these rates produce annual incomes varying from $624 to $1,404. That incomes of this order are sufficient to maintain family health and efficiency, let alone inspire enthusiasm, is a proportion upon which the figures for industrial illness cast statistical doubt. I know of no studies of budgets necessary to maintain health and decency for families of average size which conclude that this is possible upon an annual income of less than $1,500 a year. Most budget studies place the figure well above this point. Few budgets include any items which may be regarded as allowances for "good will," or enthusiasm. It appears to me impossible, therefore, to make out a case for national efficiency which will involve reductions in the highest standards now possible under either of the labor standard laws. . . .[29]

This leads us to the general problems of wage policy in wartime.

## Wage Policy in Wartime

*Wages during the World War of 1914–18.*—In the absence of comprehensive rationing, the increase in employment and spendable incomes in wartime in conjunction with the inelastic supply of consumers goods is bound to lead to an increase in prices and to a concomitant reduction of real wages. As has been mentioned, these effects can be minimized if working people can be induced to engage upon a vigorous program of saving. In the absence of saving, the pressure for higher money wages is of little benefit to the working people as a whole, since the increased purchasing power is absorbed by prices sufficiently high to equalize demand and supply. However, the interest of the working people as a whole may not coincide with that of those workers who are able to secure larger advances in money wages relative to those of other workers. As has been pointed out in Eng-

[29] Brooks, *op. cit.*, pp. 3–4.

land, workers "will continue to argue that their safest course is to press for all wages they can get, even if their real standard of living is bound to fall off. It will fall further, they think, if they do not extract all the wage increases they can." [30] This argument is quite correct in that the group securing a larger increase in money wages than other groups may be able to stabilize, expand, or reduce to a smaller extent, its consumption at the cost of the consumption of those groups who are unable to secure a corresponding increase in money earnings.

During the World War of 1914–18, real wage rates fell in all countries. In terms of the real wage rates of 1914, they reached an estimated low of 76 percent in Great Britain in 1917, of the same percent in France in 1918, and of 97 percent in the United States in 1917.[31] In terms of real earnings, the decline was less severe owing to the considerable increase in the number of working hours. In the United States, there were considerable differences in the incidence of the decline. The cost of living reached a high of 192 in 1920 compared with 100 in 1914, and the movements of real earnings of the various income receivers were dependent upon their ability to secure increases in money earnings. This phenomenon is illustrated in the following table.

TABLE 29.—INDEXES OF REAL WAGES OF VARIOUS GROUPS OF WAGE EARNERS, UNITED STATES, 1914–21 *

| | *Real weekly wages* | | | | | | *Real annual wages* | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | *Manufacturing* | | | | |
| | *Federal employees* [a] | *Teachers* | *Building trades* | *Railways* | *Bituminous coal mines* | *8 manufacturing industries* | *All* | *Food* | *Textile* | *Iron and steel* | *Agricultural implements* |
| 1914 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| 1915 | 100.2 | 101.2 | 99.8 | 101.9 | 103.5 | 98.6 | 97.1 | 99.0 | 100.7 | 95.4 | 96.3 |
| 1916 | 97.2 | 97.4 | 94.3 | 99.0 | 107.3 | 107.1 | 102.7 | 101.7 | 106.6 | 105.5 | 99.9 |
| 1917 | 88.4 | 88.8 | 85.1 | 95.5 | 112.5 | 108.5 | 103.8 | 99.0 | 108.2 | 110.7 | 94.4 |
| 1918 | 79.0 | 78.8 | 77.7 | 112.2 | 114.1 | 111.3 | 110.3 | 105.4 | 115.8 | 121.5 | 99.3 |
| 1919 | 77.0 | 81.7 | 78.2 | 104.0 | 117.0 | 114.8 | 115.4 | 110.7 | 118.5 | 120.8 | 99.2 |
| 1920 | 72.2 | 81.1 | 90.8 | 111.0 | 113.1 | 120.6 | 116.9 | 109.9 | 125.2 | 121.1 | 101.5 |
| 1921 | 79.6 | 106.3 | 106.0 | 115.6 | 139.5 | 112.9 | 116.0 | 120.0 | 120.4 | 106.7 | 104.8 |

* Temporary National Economic Committee, *Hearings*, 76th Cong., 2d Sess., Part 21 (Washington, 1940), pp. 11333–42.
[a] District of Columbia.

[30] *New Statesman and Nation*, June 28, 1941, p. 643.
[31] See Lloyd G. Reynolds and Associates, *op. cit.*, p. 58.

It is well to remember that the increases, where they occurred, reflected increases in money wage rates as well as longer hours of work.

*Stabilization of wages in war.*—The situation which is likely to confront the individual employer in wartime has been aptly characterized in the following words:

> The trade unions press for the highest terms they can get from the employers, and when the latter argue that in fixing wages the danger of inflation must be borne in mind the workers ask, not unnaturally, "Do you really believe that the granting or withholding of our demands, which only applies to a very small proportion of all the workers in the country, would affect the question of inflation in one way or the other?" When employers reply that in the case under consideration the effect on inflation would be negligible but that the cumulative effect of a number of such wage settlements would be very great, then the workers reply, "Well, that's a matter for the government to settle; they should lay down principles to guide negotiators on both sides." [32]

Public policies in wartime are usually designed to stabilize wages. The stabilization of wages is tied up with the stabilization of the cost of living, and changes in money earnings are made in the form of cost-of-living allowances which are added to the frozen money wages if the cost-of-living index rises. Wage-stabilization schemes often contain a plea for the adoption of children allowances. These are held to be of special importance in wartime when costs of living rise and reduce the purchasing power of wage earners to the level of consumers goods available. It is regarded as "undesirable that retrenchment should take place at the expense of the health of working class children. . . . Dependence upon rising prices to effect the unavoidable reduction in consumption—the goods are not there in any case—could only be robbed of these dangers if it was accompanied by a policy of general family endowment." [33] A scheme providing for the payment of direct family allowances by the government to low-paid wage earners was endorsed in England in 1941 in a resolution

[32] B. Seebohm Rowntree, "Wages in War-Time," London *Times*, January 4, 1941.

[33] "Allowances for Children," *Economist*, June 21, 1941, p. 819.

supported by 150 members of the House of Commons but did not materialize owing to the opposition of organized labor. It was believed that the scheme would impair its bargaining position, in spite of the fact that the proposed payments were to be made by the government and not by the employers.

Under conditions of rationing, the index of the cost of living does not reflect the true extent of the decline in real satisfactions to be obtained for a given amount of money. Cost-of-living indexes indicate the increase or decrease in the sum of money required to purchase a given amount of goods, the latter being determined by representative family budgets. Under conditions of rationing these goods are no longer freely available and the income must be spent in part on substitute commodities or savings which "cannot secure the same real income as money spent on rationed goods (otherwise the expenditure would have flown into those channels in the first place). To maintain the same real income, the increase in money income will therefore have to be greater than what is obtained if only the rise in prices is taken into account." However, even under these conditions the index is regarded as a suitable basis for changes in money wages since "this ensures that the share of labor in the national income is not reduced. Even if everything were rationed, so that the increase in wages could not secure an increase in consumption at all, it would still be desirable that wage rates should be adjusted to the rise in prices to ensure that the working classes receive a fair share of current savings and to avoid an undue concentration of claims on future wealth in the hands of profit-earners." [34]

Wages can be more liberal the more the workers are, in the absence of rationing, inclined to increase the rate of saving. If they do this, the additional earnings will not inflate prices but supply a backlog of effective demand available after the conclusion of the war. Government policies designed to check inflation while allowing the workers higher wages must thus encourage saving in a vigorous manner. In England, the British Employers' Confederation pledged that savings of the workers would not be used as an argument against them in future wage negotiations. The government supplemented this policy

[34] Letter from N. Kaldor to the *Economist*, July 12, 1941, p. 47.

by announcing that war savings up to a total of £375 would not be taken into account in the calculation of an applicant's means wherever these are of relevance in connection with the various social services.

British studies sponsored by the National Institute of Social and Economic Research indicate that regularity of collection and collection at the source are the best methods of stimulating saving by workers.[35] As a Yorkshire comment pointed out, "when you've got it, it all goes." A survey of the saving habits of 2,600 families since June, 1940, revealed that out of 22 different varieties and methods of savings, industrial life insurance was the most popular and was purchased by three-fourths of the families in Bristol and Bradford. Other types of saving, though likewise important, followed in a wide distance. Variations of saving on the different income levels were as follows: "In the various towns between 50 and 60 percent of working class families (excluding those with earners called up) had increased their incomes since the war by amounts most commonly between 15 and 20 percent. At every income level those with increased incomes were saving more than the others; that is to say there is a tendency to save additions to earnings." On the other hand, studies in Bristol indicated that the percentages saved of the additional income went up with decreasing standards of living, and ranged from 3 percent among the families on the "comfort" level to 21 percent among the families on poverty level. Among the modal group of 52 percent of these families, which maintained a "sufficiency" standard, the savings were 6 percent of the additional earnings. It was also noted that the marked increase in the number of families saving was not wholly the result of increased incomes. In Bradford, among families with increased incomes, the proportion saving through national savings had grown from 29 to 63 percent; among families with stationary incomes, from 32 to 66 percent; and among those with decreased incomes from 23 to 47 percent. Wartime saving was thus aptly described as the expression of a distinct psychological attitude on the part of the working people. "Along with the desire to help in the war goes the fear of what conditions will be like after the war." Saving served as an insurance against new contingencies.

[35] London *Times*, April 21, 1941.

*Wartime wages in England.*—In June, 1941, the official index of the cost of living in England had advanced 30 percent above the pre-war level. For reasons discussed above, p. 166, this no longer indicated the true extent of the increase. After the application of the necessary adjustments, the index would have been 5 to 7 percent higher. Weekly full-time rates of wages had then risen, on the average, by 20 percent since the outbreak of the war in 1939. Under the influence of increased hours of work and overtime pay, average money earnings were estimated to have risen 35 percent between 1938 and June, 1941. This would indicate a fall in real wages (earnings) of about 2 percent, compared with a fall of average hourly earnings, in real terms, by 11 percent.[36]

It seems that the fall in real wages was not accompanied by an increase in industrial profits. Such information pertaining to profits as was available indicated that there was a slight decline in net profits after taxes during 1939–41.[37] The *Economist's* index of profits reflected this movement though it did not measure it adequately, calculating profits before income taxes.

TABLE 30.—INDEX NUMBERS OF PROFITS, GREAT BRITAIN, 1939–41
(JULY, 1935–JUNE, 1936 = 100) *

| | |
|---|---|
| 1939, first quarter | 127.1 |
| 1939, second quarter | 122.9 |
| 1939, third quarter | 121.8 |
| 1939, fourth quarter | 119.6 |
| 1940, first quarter | 119.6 |
| 1940, second quarter | 120.5 |
| 1940, third quarter | 115.4 |
| 1940, fourth quarter | 114.2 |
| 1941, first quarter | 112.3 |
| 1941, second quarter | 108.3 |

* *Economist*, March 1, 1941, p. 281; July 26, 1941, p. 109.

Attempts of the government to gain the support of the labor move-

[36] J. L. Nicholson, "The Trend of Wages," Institute of Statistics, Oxford, *Bulletin* 3: 242–46 (August 9, 1941).

[37] "Industry's Reward," *Economist*, February 15, 1941, pp. 817–18; "Profits under Control," *ibid.*, July 26, 1941, pp. 109–10.

ment in a policy of wage stabilization failed. In a White Paper the government had announced its desire to prevent further increases in wages unless they were accompanied by a concomitant increase in the productivity of the workers or justified by an increase in the cost of living.[38] A policy of price stabilization was designed to prevent such an increase. Exemptions were also stated with respect to the wages of low-paid groups. The British Trades Union Congress declined to endorse the scheme, pointing out that the cost of living had advanced 30 percent and wages only 20 percent, and that some industries had lagged behind others in wage increases. Freezing wages at an arbitrary level, it was said, would result in gross inequalities and would be likely to compel working people to accept a depressed standard for the duration of the war. There was thus to be a continuation of wage adjustments by means of the existing negotiation machinery, whose valuable work the government had recognized in its statement by pointing out that "the freedom of opportunity to make claims and to have them discussed has enabled industrial peace to be maintained." The disinclination of the labor movement to submit to a general freezing of wages was enhanced by the lack of certainty that prices actually would cease to rise after a wage stop had been agreed upon. "Any reduction in consumable supplies (resulting for instance from a fall in productivity due to the decline in real wages, or from shipping difficulties and enemy action), or any increase in demand (on account, *e.g.*, of increased employment or of a decreased propensity to save), will create a new 'inflationary gap' and will set prices rising again. Money wage rates being constant, this will send down real wages correspondingly." [39] Under the then prevailing conditions the wage bargain of the trade unions had assumed a new meaning. As an observer put it, bargaining was no longer for a larger share in present consumption but "for a higher share in national savings and hence in the national debt . . . ; for a higher share in future consumption." [40] The *Economist*, in commenting upon British wage

[38] *Statement on Price Stabilization and Industrial Policy*, Cmd. 6294 (London, H.M.S.O., 1941).

[39] F. Burchardt, "The White Paper on Industrial and Labour Policy," Institute of Statistics, Oxford, *Bulletin* 3: 235–41 (August 9, 1941).

[40] *Ibid.*, p. 238.

policy, emphasized the special significance of the checks upon consumption in view of the fact that checks upon income were not tolerated by the working people. It was checks upon consumption, not upon income, that the prevention of an excessive inflation had mainly to rely on. "The financial stability, the economic efficiency and the social justice of the war economy will continue to depend upon the physical control of spending rather than on the restriction of spending power. The political obstacles to checking incomes make all the more urgent the need for complete rationing and control of distribution." [41]

*Canada.*—Attempts to stabilize wages were undertaken in Canada in December, 1940. Wages were to be placed under a ceiling represented by the highest level attained during the period from 1926 to December, 1940, and individual wage rates were allowed to be maintained on or restored to this level but should not be increased beyond it. The scheme went farther than the British proposals by providing for a separate bonus to protect workers against increases in the cost of living. The cost-of-living bonus, which was further defined in June, 1941, was to consist of 25 cents per week for each rise of 1 percent in the official index of the cost of living, the rise to be measured from August, 1939. However, if wage increases had been granted after this date, the rise would be measured from the date when the wage increase became effective. The first bonus was not to be paid before a rise of the index of 5 percent had occurred; subsequent bonuses were to be paid within three-month intervals if the index had risen by at least 5 percent during such interval. Similar provisions governed the reduction of the bonus in the case of a fall in the cost-of-living index. Experience under the scheme did not seem to be encouraging. In September, 1941, the Minister of Labor pointed out that the occurrence of strikes for higher wages raised the question whether the wage policy was to be maintained.[42]

*United States.*—In the United States the situation differed from the one in England in important respects. During the first two years of

41 "No Policy for Wages," *Economist*, July 26, 1941, pp. 99–100.

42 New York *Times*, September 18, 1941. The payment of the cost-of-living bonus was made compulsory and slightly modified in October. New York *Times*, October 26, 1941.

the war, a considerable advance in real earnings did not impede a similar advance in net profits. The increase in real earnings reflected the expansion of production for civilian consumption under the influence of demand induced and made effective by the defense program,[43] and was bound to abate once civilian production could no longer be expanded.

The index of cost of living increased from 100.6 to 109.4 during the period from September, 1939, to October, 1941. There is little doubt that this increase did not reflect the high cost of housing and living in many centers of defense production and newly created "boom-towns." During the same period, average hourly earnings in manufacturing rose from 63.8 to 77.0 cents; average weekly earnings from $24.72 to $32.89. From September, 1939, to October, 1941, average weekly hours in manufacturing had risen from 38.0 to 41.1. Hence, the increase in the cost of living was small relative to the increase in hourly money wages, and smaller still relative to the increase in weekly money earnings, which had advanced rapidly under the influence of longer working hours and overtime pay.

Stabilization of wages made some progress in the ship-building and construction industries. In the ship-building industry, wages were fixed for two years, with the possibility of earlier negotiations should the cost of living advance by 5 percent.[44] An agreement between the building trades' unions and defense agencies, covering defense construction work, provided for the maintenance of prevailing wages for one year.[45] Similar agreements were prepared for the aircraft and other industries.[46] It was anticipated that "as we get forward in the [defense] program, the emergency will call for more rather than less special kinds of treatment, including the mediation board, stabilization pacts, or legislation, to limit what wages can be, and thus take it out of the area of collective bargaining." [47]

There was no indication that the increase in money wages which

[43] See above, pp. 80f.
[44] *Defense*, June 17; August 12; September 3, 1941.
[45] *Ibid.*, July 29, 1941.
[46] *Ibid.*, July 1, 1941.
[47] Testimony of Leon Henderson before the House Committee on Banking and Currency, 77th Congress, 1st Sess., *Hearings* on Emergency Price Control Act of 1941, August 7, 1941.

was permitted to occur in 1940 and 1941 did impede the rise in profits, even though price control measures were not applied to wages and wage increases were held not to justify increases in prices. The fact that wage increases were readily absorbed by increased profits stimulated the demand for still higher wages. Mr. Philip Murray, President of the C.I.O., pointed out that six of America's outstanding corporations (General Motors, American Telegraph and Telephone Company, Standard Oil of New Jersey, United States Steel, Du Pont Corporation, General Electric Corporation), which employed a total of 885,000 persons, had made net profits amounting to $699,780,000 in 1940, or nearly $800 per employee.[48] When the steel industry, whose prices were frozen, submitted to an increase of hourly wages by 10 cents in April, 1941, spokesmen of the industry expressed doubt whether it was possible to absorb the increase at existing prices. However, earnings of the steel industry before federal income and excess profits taxes and reserves for other contingencies were 18.7 percent higher in the second quarter of 1941 than in the first.[49]

## Industrial Disputes

In a democracy, the maintenance of an enduring defense effort on the part of labor must be secured by its voluntary coöperation. In a patriotic manner, the leaders of both major groups of the labor movement in the United States pledged their wholehearted support for the defense effort. In his New Year's message, Mr. William Green, president of the A. F. of L., pointed out the interest of the A. F. of L. in "building the most powerful and invulnerable defense structure in our nation's history. . . . We are proud of the record our own members of the American Federation of Labor have made in this country during the past year [1940]. There has not been a single strike by an American Federation of Labor union which impeded the defense program. We are pressing for wider and even more effective self-discipline among our organizations, we are preparing to assume new burdens and sacrifices whenever necessary, but we also insist

[48] Address before the national convention of the American Association of School Administrators, Atlantic City, February 25, 1941.

[49] New York *Times*, August 3, 1941.

on our democratic rights. We want a voice in shaping defense policies and we demand representation on all government agencies administering the defense program." [50] Mr. Philip Murray, president of the C.I.O., referred to the millions of the members of the C.I.O. in the mass-production industries. "Upon their labor and loyalty," he pointed out, "depends the production of all that is most essential to industrial stability and national defense. As patriotic Americans, the workers in these basic industries desire to make their full contribution to the welfare of their country and the defense of its institutions." [51]

Though both union leaders as well as the Secretary of Labor turned against an abrogation of the right to strike, assurances were given that the unions would do everything in their power to end disputes before strikes in defense industries were called. Various local and international unions voluntarily renounced such strikes in statements of their policy or in agreements with employers. In consequence of

TABLE 31.—STRIKES IN THE UNITED STATES, 1916–20, 1935–41 *

| | *Number of strikes* | *Workers involved* | *Man-days idle* |
|---|---|---|---|
| 1916 | 3,789 | 1,599,917 | [a] |
| 1917 | 4,450 | 1,227,254 | [a] |
| 1918 | 3,353 | 1,239,989 | [a] |
| 1919 | 3,630 | 4,160,348 | [a] |
| 1920 | 3,411 | 1,463,054 | [a] |
| 1935 | 2,014 | 1,117,213 | 15,456,337 |
| 1936 | 2,172 | 788,648 | 13,901,956 |
| 1937 | 4,740 | 1,860,621 | 28,424,857 |
| 1938 | 2,772 | 688,376 | 9,148,273 |
| 1939 | 2,613 | 1,170,962 | 17,812,219 |
| 1940 | 2,450 | 575,000 | 6,500,000 |
| 1941 [b] | 2,075 | 1,187,000 | 14,450,000 |

* Florence Peterson, *Strikes in the United States 1880–1936* (U.S. Bureau of Labor Statistics Bulletin No. 651, Washington, 1938), pp. 39, 41; "Trend of Strikes," *Monthly Labor Review* 52: 407 (1941); New York *Times*, August 27, 1941.

[a] Not reported.

[b] First six months.

[50] New York *Times*, January 1, 1941.

[51] *Ibid.*

these actions, the number of strikes in 1940 was smaller than in any of the preceding three years; the number of workers involved was lower than in any year since 1932, and the loss of man-days the smallest since 1930. There was, however, a considerable increase in strikes during the first six months of 1941. It is interesting to compare the extent of industrial disputes in 1939–41 with that of previous years and, particularly, the years of the World War of 1914–18. (Table 31.)

Of the total working time for the entire year 1940, less than two hours per worker were lost because of strikes.[52] In the engine-manufacturing and machine-tool industries, strikes in 1940 were responsible for only one day of idleness for every six years of work.[53] This is illustrated in the following table.

TABLE 32.—MAN-DAYS OF IDLENESS DURING STRIKES IN 11 INDUSTRIES CLOSELY RELATED TO NATIONAL DEFENSE, COMPARED WITH MAN-DAYS WORKED, 1940 *

| *Industry* | *Minimum number of man-days worked* | *Man-days idle as a percentage of man-days worked* | *Number of man-days worked per man-day idle* |
|---|---|---|---|
| Aircraft | 21,624,000 | .17 | 594 |
| Aluminum | 6,792,000 | .45 | 222 |
| Automobiles | 107,424,000 | .10 | 1,031 |
| Blast furnaces, steel works, and rolling mills | 116,088,000 | .12 | 849 |
| Electrical machinery | 57,624,000 | .68 | 146 |
| Engine manufacturing | 12,528,000 | .06 | 1,685 |
| Explosives | 1,824,000 | .16 | 601 |
| Foundries and machine shops | 96,624,000 | .27 | 375 |
| Machine tools | 1,584,000 | .05 | 1,822 |
| Sawmills, logging camps and millwork | 110,352,000 | .39 | 254 |
| Shipbuilding | 22,488,000 | .21 | 466 |

* *Defense*, February 25, 1941.

52 *Defense*, February 11, 1941.
53 *Ibid.*, March 4, 1941.

The War Department prepared a compilation indicating the extent to which strikes occurring during the first six months of 1941 had affected its orders. This compilation listed 187 strikes out of a total of 2,075; 213,900 out of 1,187,000 workers involved; and 2,458,-150 out of 14,450,000 man-days lost.[54] This total of 14,450,000 man-days idle compares with an estimated annual loss of 250,000,000 man-days owing to industrial accidents, though the comparison must not be driven too far since the incidence of the loss caused by industrial accidents is dispersed over the various industries and does not result in the complete shut-down of any individual enterprise. The strikes in 1941 gave rise to a widespread press campaign. Agitation against organized labor added adverse effects upon national morale to the adverse effects upon production caused by the strikes.

The great number of strikes during the World War of 1914–18 had been the symptom of workers' attempts to enforce increases in wages to keep them in line with the then rapidly rising cost of living. During 1939–41 there was no comparable rise in the cost of living, and a good many of the strikes were due to other causes. These included disputes arising from employers' resistance to the extension of organization and to collective bargaining; wage differentials regarded as unjustified by labor under the prevailing conditions; and disputes arising from the desire of the unions to extend the closed shop.

Some of the industries which were greatly expanded under the influence of the defense effort had been unorganized in the past, and the increase in employment was accompanied by successful organization drives on the part of unions. Unrest resulted from the lack of training of both employers and unions in the orderly processes of collective bargaining, and was enhanced by the vehemence with which some of the "younger" unions proceeded in their organization drives. In a few cases the shortsightedness of employers enabled communist agitators to stimulate strikes by utilizing causes for genuine complaint. Some of the companies concerned, such as Ford Motor Company, and Bethlehem Steel Corporation, had resisted the organization of their employees for decades. Referring to the "Little

[54] New York *Times*, July 14, 1941.

Steel" group composed of Bethlehem, Republic, Inland and Youngstown Steel Companies, a Senate Subcommittee of the Committee on Labor and Education pointed out their consistent failure to enter into collective bargaining and the danger involved in this attitude:

> In this segment of the steel industry, employer-employee relationships continue strained and, today, there are no adequate collective bargaining arrangements for the adjustment of differences between certain of these companies and their employees. Recent events lend a new urgency to this situation. The conduct of labor relations by managements in key industries according to antiquated concepts of industrial absolutism must now be recognized as a threat to national defense.[55]

In cases like these the application of the orderly processes of collective bargaining as provided in the National Labor Relations Act was bound to minimize further unrest. There was, however, no consistent policy with respect to those concerns which were violating the Act. The Attorney General, in an informal opinion requested by the Defense Commission, had held that companies found by the National Labor Relations Board to be violators of the National Labor Relations Act were barred from obtaining government contracts. He also held that "the findings of the National Labor Relations Board that an employer is in violation of the National Labor Relations Act is binding and conclusive upon the other agencies of the executive branch of the government unless and until these findings are reversed by a court of competent jurisdiction." [56] Mr. Knudsen, of the Defense Commission, declared himself in disagreement with this opinion, stating that "the Defense Commission has no authority and does not want to undertake the job of enforcing the labor laws." [57] There was some doubt how this was to be reconciled with the statement of labor policy adopted by the Defense Commission in August, 1940,[58] and with the previous policy of federal agencies to refuse contracts to

[55] Violations of Free Speech and Rights of Labor, *Report* of the Senate Committee on Education and Labor, 77th Cong., 1st Sess., S. Report No. 151 (Washington, 1941), p. 3.

[56] New York *Times*, October 4, 1940.

[57] Address at the annual meeting of the Army Ordnance Association, October 8, 1940.

[58] See above, p. 155.

concerns held in violation of the National Labor Relations Act.[59] In subsequent months, a number of contracts of varying significance was awarded to such firms by the Army and Navy Departments. In 1941, the whole issue lost much of its importance when the Ford Motor Company and various other companies, including Republic Steel, decided to abide by the decisions of the National Labor Relations Board.

Another source of industrial disputes was differences in the wages paid in civilian industries and related industries producing for defense. This was particularly true in the aircraft industry, where wages had lagged behind wages paid in the automobile industry. Occasionally, jurisdictional disputes between C.I.O. and A. F. of L. unions and between different unions affiliated with the A. F. of L. threatened to hamper defense production but were settled soon under the pressure of an aroused public opinion. On other occasions, the closed shop became the issue of labor disputes. Labor was reported to press for the closed shop "because the closed shop or its equivalent is the best means the unions have of controlling workmen in the plants through the union disciplinary powers. Those who are not in the union are not within the scope of such discipline, the union leaders say, adding that if they are to be held responsible for fulfilling union contracts they must have the authority to stop wildcat or unauthorized strikes." [60] Demands for the closed shop were, in general, turned down by the federal mediation agency, which substituted "union-security" or "maintenance-of-membership" agreements for it. Under this agreement an engagement of the employer was stipulated, stating that "any employee who is now a member of the union, or who hereafter voluntarily becomes a member during the life of this agreement, shall, as a condition of continued employment, maintain membership in the union in good standing."

*Settlement of industrial disputes in England.*—In England, the number of strikes in 1940 was 922, with 299,400 workers involved and 940,000 man-days lost.[61] Though the number of strikes was higher

[59] *Hearings* before the Special House Committee to Investigate the National Labor Relations Board, 76th Cong., 2d Sess., Vol. 17 (Washington, 1940), pp. 3487–98.

[60] New York *Times*, August 17, 1941.

[61] *Ministry of Labour Gazette*, May, 1941, p. 98.

than during all years from 1930 to 1938, except 1937, the duration of the strikes occurring in 1940 was extremely short and the number of idle man-days lower than in any year of the century. Coalmining accounted for 54 percent of the losses and for more than three-fifths of the workers involved in strikes. It was pointed out in England that "the loss of under a million working days—a mere fraction of a day per worker—is a cheap price to pay for the preservation of industrial liberty. Indeed, it is very possible that the net result on output is not loss but gain; for the reported results of these stoppages show that they have often led to the removal of grievances which might have kept output down." [62] Wide use was made of the existing machinery for voluntary arbitration of industrial disputes, and supplementary facilities were created for the settlement of disputes not adequately adjusted by it. Under an Order of July 18, 1940, industrial disputes, existing or apprehended, could be reported to the Minister of Labor, who could refer the matter to an existing arbitration tribunal or to a newly created National Arbitration Tribunal. Arbitration awards were to be binding upon both parties. Strikes and lockouts were not to take place before the dispute had been referred to the Minister and the latter failed to refer it for arbitration within 21 days. The order also made it mandatory for employers to observe the recognized terms and conditions of employment as stipulated by collective bargaining agreements or arbitration machineries of the various occupational groupings. Wherever a departure from these trade-union practices should become necessary under the influence of the war emergency, this would be placed on an official record with a view to restore the practice after the war.

It is only in Germany that strikes are outlawed under the system of forced labor which has been in existence in that country long before the outbreak of the war in 1939.

*Settlement of industrial disputes in the United States.*—In the United States, attempts to induce Congress to declare strikes unlawful were unsuccessful. It was recognized that "laws against strikes do not make men work and they do not remove the difficulties which produce strikes. Strikes are symptoms, and the real need is to elimi-

[62] *New Statesman and Nation*, February 22, 1941, pp. 174–75.

nate the underlying grievances, which otherwise tend to foment dissatisfaction and thus lower efficiency." [63] Nor did Congress restrict the right to strike by the provision of a "cooling-off" period. An amendment to the Selective Service Act authorizing the President to seize and operate strike-bound plants was defeated.[64]

Numerous proposals were made designed to prevent the stoppage of defense work on account of industrial disputes. They included compulsory arbitration, compulsory investigation and mediation, and the establishment of a more elaborate federal machinery for mediation and voluntary arbitration. Only the last proposal was accepted. It was pointed out that compulsory arbitration proved unworkable wherever it had been tried; that it is unconstitutional, contrary to American tradition, and apt to elicit the open hostility of labor. Compulsory investigation and mediation were considered more seriously. Reference was made to the Canadian Industrial Disputes Investigation Act of 1907, the Federal Railway Labor Act, and the Minnesota and Michigan statutes, which, in one form or another, provide for cooling-off periods and investigation and mediation of labor disputes.

The Canadian Act, which had applied only to some interprovincial companies, had been extended to cover all war industries. Under this act a strike is illegal until a conciliation board is appointed to deal with the dispute and has made a report. The act did not make the acceptance of the report mandatory. However, in September, 1941, an Order was made prohibiting strikes in war industries unless approved by a secret vote by a majority of all workers affected.

The Michigan Labor Mediation Act of 1939 required workers to announce their intention to strike thirty days in advance. The Minnesota Labor Relations Act of 1939 required notice of any desire to change the terms of employment. If no agreement is reached within ten days after service of notice, notice of intention to strike may be given, but a strike is unlawful unless a notice is given to the state labor conciliator and the other parties to the dispute at least ten days before the effective date of the strike. In industries affected with a public interest, the governor of the state must be notified and may appoint

[63] Sumner H. Slichter, *Industrial Relations Policy in National Defense*, p. 85.
[64] See, however, below, pp. 181f.

a fact-finding commission. In such cases strikes are unlawful before the commission has filed a report, or within thirty days subsequent to the notification of the governor. Repeal of this act was demanded by both the A. F. of L. and C.I.O. at their state conventions of 1939.

Adaptation of the general principle incorporated in the Federal Railway Labor Act has been proposed by numerous students of industrial relations.[65] During the period of negotiation as provided by this act the employees must remain at their tasks and the employers are not allowed to change the terms of employment. If mediation and arbitration fail, the President may appoint an emergency fact-finding board to investigate the dispute and report within thirty days. The board may make recommendations but has no authority to enforce them. Strikes, lockouts, and changes in the terms of employment are unlawful until thirty days after the board has announced its findings.

This act was framed and sponsored as a result of prolonged negotiations between representatives of railway employees and carriers, and embodied the agreement of a large majority of both. In appraising the feasibility of extending similar provisions to industrial disputes in defense production, it is well to remember that the machinery provided in the railway act presumes the existence of written collective agreements and the recognition of labor's representatives on the part of the employer. It is well known that railway labor is organized in strong unions. Application of the principle of the act to industries where there is no strong labor organization or no labor organization at all or where employers are disinclined to abide by the National Labor Relations Act and bargain collectively, is held to be disadvantageous to the interests of labor.

It was recognized, however, that the establishment of a more elaborate federal machinery for mediation and voluntary arbitration would prove helpful. Reference was made to the conciliation work of the National War Labor Board during the World War of 1914–18, which had supplemented the work of the numerous mediation bodies with local or special jurisdiction in an efficient manner. The principles laid down by this board had included the protection of collective

[65] See, for example, William M. Leiserson, "Labor and Defense," New York *Times* Magazine, January 12, 1941.

bargaining and of the right to organize, equal pay for women doing men's work, and a living wage. There was to be no extension of the closed shop, but continuation of existing closed-shop agreements.

Since the National Labor Relations Board has no powers of mediation and arbitration, it was necessary either to expand the conciliation service of the Department of Labor or to create a new agency to be entrusted with defense mediation. The procedure which was finally adopted contained a combination of both methods. In March, 1941, the President created the National Defense Mediation Board to negotiate such disputes as the Secretary of Labor would certify to it. The board was composed of eleven members comprising three representatives of the public and four each of labor and employers. The board was not given any power of compulsory arbitration but would designate arbitrators if requested by the parties concerned. It was expected that public opinion and the respect commanded by the members of the board would secure the settlement of disputes upon the basis of the board's findings and proposals.[66]

Negotiation was to be carried out by panels of the board composed of three members. Unlike the National War Labor Board of World War days, the board declined to formulate specific industrial relations policies pursuant to objectives other than the speedy settlement of disputes. Though the board's work proved highly successful, it became necessary on a few occasions to implement its recommendations by more far-reaching measures. When a strike by workers of the North American Aviation, Inc., at Inglewood, California, interrupted important defense work at a time when negotiations before the board were still in progress, it was announced that strikers who had received deferred status under the Selective Service Act because of their defense employment would be called up. Subsequently, the President, as Commander in Chief of the Army and Navy, directed the Secretary of War to take possession of the strike-bound plant. This action, which occurred in June, 1941, led to the speedy termination of the strike, and the plant was returned to its owners after the differences had been settled. In August, 1941, the President

[66] For a portrait of the chairman of the Board and his activities see Louis Stark, "Labor Catalyst," New York *Times* Magazine, October 26, 1941.

directed the Secretary of the Navy to take possession of and operate a plant of the Federal Shipbuilding and Drydock Company at Kearny, New Jersey. This was necessary because the company had refused to accept a maintenance-of-membership agreement, which the board had recommended in order to terminate a pending strike. In October, there was a seizure of the plant of Air Associates, Inc., at Bendix, New Jersey. These actions are in line with similar measures taken during the World War of 1914–18. Private management of both plants was restored after a few months.

Late in 1941 the C.I.O. members of the board resigned as a result of the board's refusal to grant the United Mine Workers of America a closed shop in the "captive" coal mines. The further existence of the board then became precarious. When the United States entered the war as a belligerent, the President created the National War Labor Board, which was to continue the work of the National Defense Mediation Board. The new board was constituted in January, 1942, after representatives of employers and workers, whom the President had called to Washington in December, 1941, had agreed that there should be no strikes or lockouts, that all disputes should be settled by peaceful means, and that the President should set up a War Labor Board to handle disputes. Against the wishes of employers, closed shop controversies were left with the jurisdiction of the board. Nor was the board committed to a policy of insuring to workers a "living wage," as labor had desired.

The board was composed of twelve members, equally divided among the public, labor, and employers. Six of the members, including the chairman, had been members of the National Defense Mediation Board. It was to handle all cases not settled by ordinary processes of conciliation and to take jurisdiction either upon certification of the dispute by the Secretary of Labor or on its own motion. The board was left free to use mediation, voluntary arbitration or arbitration. In view of the preceding agreement of representatives of employers and workers, any arbitration activity of the board can be regarded as voluntary.

# CHAPTER VII

# WARTIME CONTROL OF PRODUCTION AND CONSUMPTION

The present chapter is, in the main, devoted to a discussion of priorities and rationing. These measures of direct control restrict the sphere which under the price system is reserved for the decisions of consumers and producers. They are instruments of what is commonly referred to as economic planning. In a planned economy, the "automatic" mechanism of the price system, the sovereignty of the consumers, and the deliberate control of the monopolist are replaced or supplemented by decisions of the planning authorities who determine "what is to be produced, in what quantities, by whom, and into whose hands the resulting products are to be delivered for eventual consumption." [1] Under the influence of the defense and war effort, the existing unity of purpose leads to the removal of the most important obstacle to planning in peacetime. In peacetime, the planner is said to be in want of a guide to rational production and economic calculation such as is supplied by the mechanism of the price system. In wartime, such guide is no longer lacking since the generally endorsed social objective of defeating the enemy calls for the allocation of resources and manpower in a way which will secure the materialization of this objective in the best possible manner. In the war economy, it is the usefulness of men and resources for the purpose of war which guides their allocation and utilization. The supreme goal of winning the war is paramount and no other objectives of social action are permitted to interfere with it.

The operation of wartime planning during the World War of 1914–18 as contrasted with the peacetime price system has been aptly described in the following words:

[1] See Barbara Wootton, "Economic Planning," in *Economic Principles and Problems*, edited by Walter E. Spahr, fourth edition, vol. 2 (New York, Farrar and Rinehart, 1940), p. 596, where the whole subject is adequately discussed.

Prices, during the war, ceased to perform their normal function of determining into what channel the labor and capital of the nation should flow, or how much should be produced from a given factory, farm, or mine. In all the more important activities of the country this was determined by the programmes of production, arranged by the main purchasing departments of the government, and completed and enforced by the system of priority certificates, which determined the order of production in every factory in the country. This system, together, on the one hand, with import and export restrictions and government control of shipping, and, on the other, with the limitation on the free movement of labor . . . and capital . . . formed a complete whole under which prices no longer acted as the regulator of production or the index of demand, but merely performed the function of supplying the, to some extent, arbitrary remuneration of the various factors of production. This supersession of ordinary economic influences was only possible in circumstances where every demand could be tested not by price but by reference to the war program, and where individual action was regulated—at first voluntarily under patriotic impulse and later under compulsion—by the same test.[2]

The following is a summary of the various wartime controls operating within and outside of the price system:

I. Stimulation of the war effort under the price system:
   1. Positive:
      (*a*) Purchasing activities of the government;
      (*b*) Special incentives to expand productive facilities.
   2. Negative:
      (*a*) Voluntary saving;
      (*b*) Taxation.

These measures have been discussed in Chapter 5, above.

II. Direct controls:
   1. Control over the supply and utilization of labor (Chapter 6);
   2. Allocation of goods and productive resources (Chapter 7):
      (*a*) Rationing of capital;
      (*b*) Commandeering and priorities;
      (*c*) Rationing of consumers goods.
   3. Control over exports and imports (Chapter 10).

[2] From Sir Walter T. Layton and Geoffrey Crowther, *An Introduction to the Study of Prices* (third edition, New York, The Macmillan Company, 1938), pp. 135–36. By permission of The Macmillan Company, publishers.

III. Supplementary measures:
1. Price control (Chapter 5);
2. Concentration and dispersion of production (Chapter 7).

## Allocation of Goods and Productive Resources

*Rationing of capital.*—During the World War of 1914–18, the United States government assumed control over new investment by requesting banks and other financial institutions to submit proposed issues in excess of $100,000 to a committee of the Federal Reserve Board called Capital Issues Committee.

The Committee's duty was to investigate and pass upon their desirability from the standpoint of the prosecution of the war and the general interests of the community. It had no powers to compel bankers to submit issues for its scrutiny nor to enforce its decisions; their effectiveness depended upon the patriotic coöperation of bankers and upon the responsiveness of the latter to public opinion. Yet, without legal authority, the Committee succeeded in its important task. It examined and approved almost 2,300 applications involving $2,564,000,000. Some firms "remained deaf to every appeal of patriotism," but, in general, investment houses hesitated to sponsor issues which lacked official approval.[3]

This negative control which prevented the use of capital for non-essential purposes was supplemented by a variety of measures of positive character designed to lead the flow of capital into industrial channels most useful for war production. The War Finance Corporation was chartered by the government to support the positive effort.

During the present conflict Germany has gone farthest in the direction of complete government control over the capital market. Though the stock exchange was the only market exempt from direct control over prices, attempts were made as early as 1935 to discourage the public from diverting funds to the stock market. These efforts continued throughout the 'thirties but were in part frustrated by the desire of the public to acquire titles to property (stocks) instead of money claims (bonds). In 1941 corporations holding stocks

[3] Harold J. Tobin and Percy W. Bidwell, *Mobilizing Civilian America* (New York, Council on Foreign Relations, 1940), p. 194.

in their portfolios were requested to liquidate them and use the proceeds for the purchase of government securities. The increase in the prices of stocks was further facilitated by the small volume of new issues. The government had assumed control over all new capital issues, granting permission only in those cases where the corporate issue led to an expansion of productive facilities in the direction held desirable by the authorities. In other cases the permission was declined. Thus was facilitated the placement of government securities since other outlets for funds seeking investment opportunities were limited in the described manner.

In the United States, formal controls of the negative type were absent, but a good deal of effective control was exercised in 1941 by means of the priority regulations which guided the flow of materials into such channels as could be utilized most effectively for the prosecution of the defense effort. Taking account of this situation, the Securities and Exchange Commission announced that in approving new security issues it would consider whether the applicant could hope to obtain the necessary raw materials for the desired expansion of productive facilities. As early as in March of the same year, Bernard M. Baruch proposed that an agency similar to the War Finance Corporation of World War days "should coördinate all loans for plant expansion and other war purposes and must license private capital issues, limiting those that are not for purposes vital to the war effort." [4] In September, the Secretary of the Treasury pointed out, "we may have to extend general controls over bank credit and create controls over selected capital expenditure." [5]

On the positive side, the operations of the Reconstruction Finance Corporation and its subsidiaries were helpful in supporting the financing of the expansion of productive facilities required by the defense program. New defense plants and additions to plants reached a total of 2,750 in September, 1941, with a value of $4,800,000,000, of which 3,800,000,000 had been financed by these and other public agencies.[6]

[4] "Priorities: The Synchronizing Force," *Harvard Business Review* 19: 266 (1941).

[5] Address before the Advertising Club of Boston, September 9, 1941.

[6] Address of Mr. William S. Knudsen before the Union League Club, Chicago, September 22, 1941. See also *Defense*, October 14, 1941.

Up to September 13, 1941, the Defense Plant Corporation had made commitments of $2,042,285,826 for the acquisition of plant sites, the construction and equipment of factories producing defense materials and the construction of docks and shipyards. While title to these facilities was to remain with the Defense Plant Corporation, they would be leased to and operated by private concerns. Up to the same time, the Reconstruction Finance Corporation had authorized 421 loans to 289 manufacturers under the defense program, with a total commitment of $473,960,564. All commitments of the Reconstruction Finance Corporation and its subsidiaries for reserves of rubber, metals and other strategic materials, the construction of defense plants, the acquisition of equipment, and loans to manufacturers to carry out defense contracts, totaled $3,902,952,578.

With respect to defense financing undertaken by commercial banks, a study covering 321 of these institutions in 101 cities revealed that they had granted loans of $1,093,000,000 to defense industries for plant expansion or working capital by April 30, 1941. This amount represented about 8 percent of all commercial loans of the banks included in the survey.[7]

*Commandeering.*—Commandeering, or requisition, is the lawful seizure and use of private property by the government during a military emergency. During the World War of 1914–18, the most outstanding instances of commandeering concerned the railroads, Western Union Telegraph Co., and Smith & Wesson Manufacturing Co. "Seldom used in the World War, the power to commandeer remained in the background as the government's most effective persuasive force to ensure compliance with its program." [8]

At the present time, commandeering is regulated by the following provisions. The Selective Training and Service Act of September 16, 1940 (Public No. 783, 76th Cong.) authorizes the President to issue compulsory orders, a power which the President delegated to the Secretaries of War and Navy. If a company fails to comply with a compulsory order, this is punishable as a felony, and the President

[7] *Defense*, June 17, 1941. For the distribution of the defense loans, see below, p. 205.

[8] "Mobilization for Defense," *Harvard Law Review* 54: 300 (1940).

may direct the appropriate Secretary to take over and operate facilities of a manufacturer who refuses to accept an order at a reasonable price. Just and fair compensation is provided.

Subsequent to the outbreak of the war, the more far-reaching provisions of the National Defense Act (Title 50, U.S.C., Sec. 80, s. 120) became operative. A special case relates to materials denied export which the President may requisition under the Faddis Machine Tool Act of October 10, 1940 (Public No. 829, 76th Cong.).[9]

Legislation enacted in October, 1941, placed the President's authority upon a broader basis. The President's power, which under the Selective Training and Service Act could be applied only against concerns failing to comply with compulsory orders, could then be used to requisition any military or naval equipment, supplies or munitions, or component parts thereof, or machinery, tools, or materials necessary for the manufacture, servicing or operation of such equipments, supplies or munitions. Requisitions were to take place only if immediate need for defense did not admit of delay or resort to any other source of supply, and after all means to obtain the good on fair and reasonable terms had failed. The President was to pay fair compensation. If a person was not satisfied with the compensation as determined by the President, he could appeal to the courts for additional compensation. Nothing in the act was to be construed to impair the right of any individual to keep and bear arms or to authorize the requisitioning of machinery or equipment in actual use and required for industrial operations. Requisitioned goods no longer needed for defense purposes could be returned to the original owners against payment of a fair price determined by the courts.

*Priorities.*—Of much more practical importance than the power to commandeer is the power to establish priorities. By priorities is meant the attachment of a specific ranking to the various orders, processes of production and supplies of materials in accordance with a preference scale set up by a central authority. Once priorities permeate the war economy, it is no longer the operation of the price system by means of which productive resources are allocated to specific uses, but the allocation of resources takes place by means of

[9] See below, p. 288.

governmental fiat. The decisions, which the process of allocating scarce materials and resources among competing uses involves, do not only concern civilian and military demands and the distribution of resources to meet them, but must, to be effective, be extended to an authoritative settlement of the competing demands of the army, navy and other military establishments.

In the handling of priorities on the part of the United States three consecutive stages can be distinguished. During the first period, the establishment of priorities was limited to army and navy orders. During the second, comprehensive preference scales were established and priorities granted on other kinds of orders. During the third, the emphasis changed from the attachment of priorities to individual orders or types of orders, to the rationing of materials and productive resources among the various uses.

Legislation pertaining to priorities was enacted in June, 1940, when the President was authorized to grant priorities to contracts placed by the army and navy. Upon the basis of this legislation, current orders of other purchasers could be blocked and products manufactured for other buyers taken over against payment of compensation. This type of control extended also over foreign deliveries in accordance with the export-license system described below, pp. 288–89. In subsequent months the granting of priorities was extended to cover subcontracts entered into by the primary contractors to facilitate the execution of army and navy orders.

Under this legislation the authorities had no jurisdiction to establish a more general scheme of production schedules extending beyond army and navy orders. The development of the defense program with its gradually increasing shortages of essential materials and productive resources necessitated an extension of the original priorities legislation. Under the act of May 31, 1941 (Public No. 89, 77th Cong., 1st Sess.), the President's power was no longer limited to the granting of priorities to army and navy orders but included orders for Great Britain, other democracies under the lend-lease act, and other United States government departments or private industries of vital importance to the defense program.

The administration of priorities under this legislation was as follows:

1. A list of critical materials had been composed by the Army and Navy Munitions Board. This list, which was subject to frequent revisions, contained over 300 items in the fall of 1941, including all metals except a few precious ones. Contracting officers of the Army and Navy could grant priorities on orders for these items with the exception of those over which the priorities authorities had established industry-wide control and allocation.

2. Blanket preference ratings were assigned to industries, manufacturers, or projects, enabling them to obtain all or specified materials. Such ratings had been issued with respect to producers of military aircraft, tanks, ships, shipyards, freight cars, etc. A special type of blanket preference ratings was granted to certain types of producers under the defense supplies rating plan. Under this plan producers of industrial motors, machine tools and scientific instruments could obtain suplies for an estimated percentage of their production which was designed for identifiable defense use. In this manner they were enabled to maintain "on-the-shelf" supplies.

3. Individual preference ratings were awarded to manufacturers for specific orders.

The certificates were graded in descending order of importance to indicate the sequence in which the order had to be filled. The order of preference was indicated by the following symbols: In the order of precedence AA, which was reserved for emergencies of an exceptional nature; A-l-a, A-l-b, A-l-c, . . . A-l-j; A-2, A-3 . . . A-10. As between contracts and orders in the same subdivision, the date of delivery contracted for generally determined the order of precedence.

4. To prevent the overstocking of inventories and hoarding of essential materials, inventory controls with periodically recurring reporting were imposed upon the holders of a number of metals.

5. Certain manufacturers were required to place a percentage of their current output in a "pool" designed to serve as a source of allocations.

6. Industry-wide controls involving complete charge over the output and its allocation were invoked with respect to the following commodities: aluminum, machine tools, magnesium, ferrotungsten,

neoprene (March, 1941); nickel-bearing steel (April); nickel, copper, cork (May); borax, synthetic rubbers, polyvinyl chloride, zinc, scrap aluminum, rubber (June); chromium, copper-base alloys and fabricated products made from copper and copper-base alloys, chlorine (July); pig iron, steel (in all forms, including alloys), vanadium, tungsten, formaldehydes and synthetic resins made from them, cotton linters, manila fiber, manila cordage, toluene, ethyl alcohol, methyl alcohol, potassium perchlorate, potassium permanganate (August); copper scrap (September); lead, iron and steel scrap, sperm oil, chlorinated solvents (October).

The system of priorities was thus operating by means of a great variety of technical devices which could be adjusted to the requirements of the individual case. The procedure was entirely pragmatic: "We are trying to make the treatment fit the situation and not trying to fit the situation to a preconceived treatment." [10] To make the operation of the priorities administration as efficient as possible, proper timing of allocation and production was indispensable. Bottlenecks could only be prevented if the production of the various elements entering into finished materials was synchronized to facilitate their delivery at the time when they would be required for the productive process.

In 1941 the volume of business of the priorities administration had increased from a weekly rate of applications for preference ratings of 600 in May to between 4,000 and 5,000 in September. Subsequent to the reorganization of the personnel of the priority administration in the fall of 1941, emphasis shifted from preference ratings to the rationing of available materials and productive resources. It was recognized that direct allocation had to be used more and more as the shortages increased. Direct allocation was facilitated by an inventory of requirements of the various materials for civilian and military uses and a classification of end uses of the materials in accordance with the interests of defense.[11]

[10] E. R. Stettinius, Jr., then director of the priorities division of OPM. *Defense*, March 4, 1941.

[11] *Defense*, September 30, 1941. Violators of priority orders were liable to fines and imprisonment. The first case of a violation came up in October, 1941 and concerned charges that a manufacturer had obtained aluminum through the

The powers of the President under the priorities legislation were delegated to the priorities division of OPM. With respect to competing civilian uses, the allocation of such materials as remained after military requirements had been met was entrusted to the civilian supply division of OPM, which had been transferred to this agency from the Office of Price Administration (and Civilian Supply). The first civilian allocation order was issued by OPACS in May, 1941. This order, which dealt with copper, established the following standards for the allocation:

1. No supplies were to be made available for civilian industries which discriminated against defense orders.

2. The civilian use had to be essential to the public welfare.

3. Allocation was made dependent upon the degree of hardship upon labor and business resulting from the priorities order in question.

4. Past rates of consumption were to be taken into consideration.

5. So was the objective of achieving an equitable relation with regard to supplies among all fabricators, without regard to their contacts or affiliations with firms engaged in manufacturing or processing the commodity in question.

6. The availability of substitutes for the particular use for which the commodity was sought was to be considered.

On another occasion, the administrator of OPACS indicated the following ranking of the various civilian uses:

1. Public utilities, transportation, roads, hospitals, police service and similar essential services.

2. Repairs.

3. Requirements for new productive facilities, "seed corn," "so that we may have a harvest for civilian account in the form of increased supplies a few months later." [12]

4. Other uses.

To coördinate the work of the priorities administration, a policy-making board, Supply Priorities and Allocations Board, was created

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use of preference ratings for defense use and then used the aluminum for non-defense purposes. It was expected that the violator would be shut off from all supplies and thus forced out of business. New York *Times*, October 9, 1941.

[12] House Committee on Banking and Currency, 77th Cong., 1st Sess., *Hearings* on Emergency Price Control Act of 1941, August 8, 1941.

in August, 1941.[13] It was the function of SPAB to "fix the amount of materials to be allocated to military needs, defense-aid needs, economic warfare needs and total civilian needs." Deprived of its policy-making functions with respect to the over-all allocation of materials, OPM was then outranked by SPAB. The latter agency, in turn, delegated much power to its executive director, Donald M. Nelson, who also held the office of director of the priorities division of OPM. Mr. Nelson, in the words of the New York *Times*, had become "dictator by consent," who, "until SPAB, or the President, or Congress revokes the power, . . . can and will tell American business men how to run their own businesses; and he can and will tell American consumers what they can have plenty of and what they are going to have to do without." [14]

In January, 1942, SPAB's functions were taken over by a War Production Board, to consist of the members of SPAB and with Donald M. Nelson as chairman. Mr. Nelson was to have general supervision over all production agencies and the final decision as to questions of procurement and production.

There were other federal agencies whose decisions had effects similar to those of the priorities authorities proper, within a more limited field of jurisdiction. Under an act of June 10, 1920, the Federal Power Commission had been authorized to establish preferences for the use of electric power in wartime or upon proclamation of an emergency on the part of the Commission. This power was invoked on the occasion of a shortage of electrical energy in the Southeast in 1941. Upon proclamation of a specific emergency situation on the part of the President, the Interstate Commerce Commission was authorized to announce priorities for shipments by rail.[15] Finally, the Maritime Commission was authorized under the Ship Warrants Act

[13] See above, p. 50.

[14] R. L. Duffus, "Dictator by Consent," New York *Times* Magazine, September 28, 1941. Mr. Nelson had been vice-president of Sears Roebuck, and director of the purchase division of OPM. He was born in Hannibal, Mo., in 1888, graduated in chemical engineering at the University of Missouri in 1911, and had worked since then for Sears Roebuck. Experience in public office included positions as code coördinator under NRA and textile committee chairman under the Wage and Hours Act.

[15] Section 1 (15) of Title 49, U.S.C.

of 1941 (Public No. 46, 77th Cong., 1st Sess.) to grant preferences for the use of shore facilities to ships carrying defense materials.

*Rationing of consumers goods.*—Rationing of civilian consumers goods facilitates the execution of the negative effort of war (above, p. 125) and relieves the necessity of relying upon excessive inflation or taxation. If the goods which the consumers are allowed to buy are specified as to type and amount, it is unnecessary to reduce civilian purchasing power through higher prices or taxes. Rationing, while thus avoiding the disadvantages connected with inflation and taxation, limits consumers' choices in a direct and outright manner. This may lead to undesirable political repercussions unless the rationing scheme is organized and administered in the most equitable fashion, minimizing the unnecessary sacrifices of the population and the psychological effects of restrictions upon the discretion of consumers. If it is desired to prevent all inflationary increases in prices, the controls must become very comprehensive and drastic. At the present time it is only under the yoke of the Nazi regime that controls of this type could be established. In Germany, the extent and direction of consumption is not determined by consumers' incomes, but income and consumption are treated as if they were entirely unrelated quantities. Consumption is determined by what the authorities deem the "distributable social product." [16] The direct control over consumption is supplemented by controls over all prices and cost items. Under these elaborate controls, the consuming public has only limited uses for that part of current incomes which is not absorbed by taxation. Since the controls are not restricted to incomes but extend to consumption, the use of funds resulting from the liquidation of capital is likewise severely limited, and the rich are thus prevented from consuming their wealth. The civilian use of motor cars has ceased. Retail stores have customer lists by means of which buyers are attached to specific shops. That part of income which is left after disbursements for current consumption have been made within the limits set by the rationing provisions, is guided into savings banks or government securities, since other investment oppor-

[16] H. W. Singer, "The German War Economy in the Light of German Economic Periodicals," *Economic Journal* 50: 534–46 (1940).

tunities are likewise under control. Vigorous savings campaigns are undertaken to restrict consumption still further. It was announced in October, 1941, that small savings (one mark a day) would be exempted from income and other taxes, if the holders renounce their right to ask repayment of their deposits until twelve months after the termination of the war. People are encouraged to save for specific purposes, such as for the legendary *Volkswagen*, a promised prepaid low-priced automobile, for promised low-priced tractors, and similar rainbows.

What is rationed is either quantities of specified commodities or expenditures for specified commodities. The same holds good for England. In that country, general rationing of all consumers' expenditures was proposed by an eminent student of economic science and subsequently endorsed by the *Economist*.[17] Thus far, however, no attempts have been made to apply a scheme of general rationing to reality. The exponents of general rationing hold that specific rationing of the quantities of various expenditures is too cumbersome a process, involving, as it does, excessive difficulties of control and administration and imposing considerable inconvenience upon consumers and retailers. It is also argued that, under a system of specific rationing, poor people, who do not utilize their rations to the full extent, are able to transfer the remainder to the rich, and that inventories tend to be depleted subsequent to the introduction of specific rationing schemes, since retailers are able to dispose of the stocks which they then hold, without receiving coupons. Under general rationing, it is maintained, these and other undesirable features of specific rationing would be reduced in their effects if not eliminated. Under a scheme of general rationing, the total maximum expenditures of adults and children would be fixed. The sum total available for consumption would include all expenditures except those for services and certain types of goods, such as drugs, books and newspapers. Services could be exempted "because some of them are not scarce (*e.g.*, education, entertainment) while others may, if necessary, be

[17] M. Kalecki, "General Rationing," Institute of Statistics, Oxford, *Bulletin*, Vol. 3, No. 1: 1–6 (January 11, 1941); *idem*, "Notes on General Rationing," *ibid.* 3: 103–105 (April 5, 1941). The proposal was first made by Mr. Kalecki in June, 1940, and was endorsed by the *Economist* on August 23, 1941, and earlier.

controlled much more simply by direct methods: dwelling space by billetting; travelling by reducing the number of trains and abolishing first class; gas and electricity by direct rationing; domestic services by fixing the maximum number of servants, etc., etc." [18] The fixing of total maximum expenditures would, however, not prevent the transfer of coupons from the poor to the rich unless additional devices would be applied. For example, it was proposed to modify the scheme by providing for flexible maximum expenditures approximately equal to the upper limit of the percentage of income spent in retail stores by the poorer population. If the flexible maximum would fall short of the absolute maximum, coupons would be issued to the lower amount only. There is little doubt, however, that the adoption of the income-percentage maximum would require a considerable extension of the administrative organization for the general rationing scheme. Even without the income-percentage maximum the administration of the scheme would still be extremely cumbersome if adequate provisions were made to prevent retailers from selling goods without coupons. On purely technical grounds, the most outstanding advantage of the scheme seems to lay in the fact that consumers and retailers would have to handle only one set of coupons. Specific rationing of some commodities would still be necessary, however, and in practice it may be possible to get along with two sorts of coupons, food and non-food coupons. A scheme of this type, which would be instrumental in bringing about the necessary reduction of civilian purchases in the most equitable and efficient manner, is, however, bound to meet considerable obstacles in communities where living standards of the various groups of the population are highly differentiated. Under such circumstances it would probably be necessary to make special allowances for payments on contractual obligations, varying with the extent of such obligations among the different groups.

Rationing tends to minimize the aggregate sacrifice of the population, since the supply is subdivided into equal portions and consumers' purchases are limited to such portions. This statement rests upon two assumptions, first, that it is possible to compare individual

[18] Kalecki, "General Rationing," p. 3.

satisfactions; and, second, that the last unit of a commodity permitted to any one purchaser carries about the same satisfaction as the last permitted to any other. The second assumption is, of course, unrealistic in numerous instances, and "supplementary rations of some things may be allowed to soldiers, sailors, heavy workers, invalids and children. Naturally, however, considerations of simplicity and administrative convenience point strongly towards the cruder plan of making mere existence the test and allowing equal rations to the whole civilian population." [19] So-called vocational, or classified, rationing is more widely used in Germany than in England, where agricultural workers and miners were given additional cheese rations in 1941.

Rationing must be comprehensive and control must be exercised at all stages of the productive and distributive process. In practice, rationing usually starts after price controls have been applied for a while, and then is gradually expanded to cover an increasing number of commodities. Price control without rationing produces the phenomena of disorderly and haphazard "rationing" by means of personal preferences on the part of the sellers or by means of waiting lines before shops.[20] If an early start is made with rationing before actual shortages are in existence, rations can be higher and burdensome disturbances of the process of production, such as queues, avoided. The latter are likely to account for more grumbling than rationing itself.

It is often found desirable on political and psychological grounds to proceed with rationing slowly and to exempt certain commodities from rationing control. Such was the case, for example, with respect to bread in England. As a result of this reticence, bread consumption increased by 20 percent, since people diverted their purchases from rationed foodstuffs to bread instead of to potatoes as the authorities desired. In September, 1941, England was the only European nation eating more bread than before the war, in spite of the fact that bread was more dependent on shipping space than any

[19] From A. C. Pigou, *The Political Economy of War* (new and rev. edition, New York, The Macmillan Company, 1940), pp. 141–42. By permission of The Macmillan Company, publishers.

[20] See above, p. 137.

other food. As the *Economist* pointed out, "more shipping space than is saved by the rationing has to be used to bring in extra wheat to meet the increase in bread consumption." [21]

The most difficult technical problem confronting the rationing authority is related to the fixing of the exact quantities of the rationed commodities. It is not easy to fix rations exactly so large that the market, on a given level of prices, will be cleared completely. On the other hand, if the rations are fixed too large (at a given level of prices), shortages are bound to develop which resemble the ones which are associated with a system of price control which lacks rationing. In such cases the necessary adjustments must be made by means of a system of trial and error. Available data indicating consumers' responses to changes in price and income will be of great help in the work of the rationing authorities. The disposal of surpluses which are left in spite of these efforts depends upon the specific nature of the commodity in question. In case of durable goods no special difficulties arise. With respect to perishable goods, it may be well to fix provisional maxima which can be exceeded should the supply not be fully exhausted.

As has been pointed out, it is either quantities of specified commodities or expenditures for specified commodities which are rationed. Rationing of the former type is usually applied to food, that of the latter to clothing and other commodities available in various qualities or related types. So-called global quotas, or group rationing, are applied to comestibles of similar types in cases where the supply of one of the commodities globally rationed is completely inadequate for a minimum per capita distribution, or where the commodity is only very selectively consumed.

"Rationing . . . must be by general rules. Such rationing is hardly practicable on a large scale except for things that people are accustomed to buy regularly and continuously, and for which enormous divergences of need do not exist. Rationing of things like pianos and bicycles, or even of suits of clothes, which people buy at irregular intervals, would be exceedingly difficult." [22] With respect to

[21] *Economist*, July 5, 1941, p. 8. See also New York *Times*, September 9, 1941.
[22] Pigou, *op. cit.*, p. 143. By permission of The Macmillan Company, publishers.

purchases of this type, rationing may be supplemented by a system of licenses.

Food rations in England, Germany and various continental countries are indicated in the following table. It is to remember that not all rationed foodstuffs are listed in this table. German rationing, for example, includes cheese, milk, honey, cocoa, eggs, and "*Nährmittel*" (semolina, rice, etc.). A comparison of the various quantities permitted in the different countries does not perfectly reflect their relative situation, since the importance of substitute products, availability of unrationed foods, and differences of nutrition habits and needs must be taken into consideration for a full appraisal.

TABLE 33.—WEEKLY ALLOWANCES OF VARIOUS FOODSTUFFS, IN OUNCES PER PERSON, EUROPEAN COUNTRIES, 1941 *

| | *Bread* | *Butter and fats* | *Sugar* | *Meat* | *Coffee and substitutes* |
|---|---|---|---|---|---|
| Britain | [a] | 10 | 12 | 16½ | [a] |
| Germany [b] | 80 | 9½ | 8 | 17½ | 3½ |
| German protectorates | 67 | 5 | 10½ | 17½ | 3½ |
| Italy | 50 | 7 | 5¼ | [c] | [d] |
| Occupied France [e] | 74 | 3½ | 4½ | 12¾ | 2 |
| Belgium [b] | 56 | 14 | 7½ | 22 | 3½ |
| Netherlands | 71–89 | 9 | 9 | 17½ | 2 |
| Poland [f] | 62 | 2 | 2¼ | 8½ | None |
| Denmark | 72 | 12½ | 13 | [a] | 1 |
| Norway | 81 | 11 | 7 | [a] | 2 |

* New York *Times*, March 16; October 3; October 5, 1941.
[a] Unrationed.
[b] Extra rations for heavy workers.
[c] Three days.
[d] For army and hospital use.
[e] Children receive extra sugar.
[f] Germans in Poland receive extra rations.

Rationing of clothing, which had been in existence in Germany since 1939, was applied in England in June, 1941. Under the English scheme, clothing cards were issued granting each person 66 coupons for one year's purchases of clothing, cloth, footwear and knitting

wool. Both in Germany and England, the control of purchases of clothing was based upon "point-rationing." Under this system, coupons are not related to value or to specified articles but can be used for any type of clothing, each article requiring varying numbers of coupons. The English scheme was rather liberal, requiring 26 coupons (out of 66) for a suit of clothes, 11 for a woman's dress, 8 for a man's trousers, 3 for a pair of socks. One coupon was sufficient for the purchase of two handkerchiefs, or one collar, or two ounces of knitting wool. It was estimated that under the scheme families with incomes of £3 a week or less were allowed more clothing than they used to purchase. Families with incomes from £4 to £5 a week would have to buy less.[23] There was no limitation upon the number of coupons to be used at one time, though the public was requested, "Do not buy more than you need, nor before you must."

Under the German scheme persons received 150 coupons per year until late in 1941. However, the proportion of the number of coupons required for the various articles to the total number of coupons was generally much higher than in England. "For example, a suit and two cotton shirts represent a year's ration for a man in Germany. In Great Britain they take 54.6 percent of it, leaving enough coupons for two pairs of shoes, two sets of underwear, two pairs of socks, and half a dozen handkerchiefs. Moreover, all these are of more durable quality." [24] In October, 1941, German rations were further restricted. New ration cards were to have only 120 points instead of the former 150, and twenty of these were to be invalid for an indefinite length of time. Moreover, the remaining 100 points had to suffice for fifteen months, instead of the previous twelve months. This was interpreted by German commentators as a cut of about 50 percent.[25] Differences of durability between English and German goods are of particular importance. While the Germans developed a great industry of synthetic fiber production, it is well to remember that virtually all of the synthetic fibers are nothing but special sorts

[23] *Sunday Times* (London), June 1, 1941.
[24] *Economist*, June 14, 1941, p. 802.
[25] New York *Times*, October 3, 1941.

of paper. Moreover, footwear is so short in Germany that boots and shoes are not obtainable merely on ration cards but require special permits for every purchase.[26] The same is true with respect to heavy overcoats. One of these absorbs 120 coupons out of the total of 150.

The British public received the rationing scheme in good spirit. It was pointed out, however, that point-rationing, requiring the same number of coupons for cheap and expensive articles, discriminates against the poor and leads to the tie-up of more labor and material than necessary. "Rationing by points is formally egalitarian; actually it places the poorer classes of the population at a disadvantage. They buy the poorer and that means, in many cases, less durable quantities. They may get good value for their money but they get less utility out of their coupons than the better off who in addition possess greater stocks of these goods. . . . Greater durability of the goods purchased by well-to-do does not induce him to use less coupons than the poor in the long run. Those who can afford it will buy their full ration every year; perhaps more than they would buy without rationing." [27]

In the United States there was no shortage of foodstuffs or clothing, and a mild form of rationing was applied first to gasoline, whose supply was limited because of transportation difficulties.[28] The second commodity placed under rationing control was rubber and rubber products, articles whose continued importation was endangered by the outbreak of the war with Japan. It was also necessary to curb purchases of durable consumers goods. While the demand for these had greatly increased under the influence of the rise in the wage bill and in national income, their supply could not be indefinitely expanded since they absorbed productive resources to be converted to defense production. Since 60 to 80 percent of durable consumers goods were purchased on installment, a reduction of their purchases

[26] Soling of old shoes, bed sheets, towels, etc. are likewise rationed in Germany. Persons turning over unused footwear (left by soldiers, etc.) receive special allowances in return.

[27] F. Burchardt and G. D. N. Worswick, "Point Rationing," Institute of Statistics, Oxford, *Bulletin* 3: 185 (June 28, 1941).

[28] See below, p. 234.

could be brought about by tightening the terms of installment sales or by the complete prohibition of such sales. This, of course, meant "rationing" of the purchases of those people who were unable to buy on cash terms, while those who did not have to utilize installment terms were not restricted in their consumption. To secure the general application of restrictions of installment sales, the President directed the Federal Reserve Board to proscribe suitable regulations.[29] The maximum length of installment purchase contracts was limited to eighteen months and minimum requirements were set up for down payments varying from 10 to 33⅓ percent of the prices of the various commodity groups.

### Dispersion and Concentration of Defense Production

*Distribution of defense production.*—In an address before the Conference of Southern Governors, Mr. Chester C. Davis, then agricultural commissioner of the Defense Commission, pointed out that

> defense contracts are being absorbed by a small handful of concerns, and the very smallness of the number threatens to be a serious bottleneck in the full use of our industrial and human resources. . . .
>
> I was interested and somewhat shocked a few days ago to see a tabulation of defense orders to date, not as between areas but between industrial concerns. Included in this tabulation were $11,500,000,000 of prime contracts awarded between June 13, 1940, and February 15, 1941. This tabulation includes all types of contracts. Of this vast total between one-fifth and one quarter had gone to two groups of companies of closely interconnected groups. And a total of 80 percent has gone to 62 companies or interrelated groups of companies. There is rich food for thought in these figures and I believe they are closely related to the mediocre success we have had in apportioning a part of this new defense industry to the states in this conference.[30]

The same subject was further discussed in the final report of the Temporary National Economic Committee submitted to Congress in March, 1941.

[29] Executive Order of August 9, 1941. This was based upon the Trading with the Enemy Act of October 6, 1917.

[30] Address in New Orleans, La., March 15, 1941. *Defense*, March 18, 1941.

The large defense contracts awarded by the War and Navy Departments in the period from June 1, 1940, to March 1, 1941, amounted, in round figures, to $12,695,000,000, a sum which is more than half of all the value added by manufacture in all the industrial plants of America for all industrial commodities during the year 1939. It is a sum which exceeds the total assessed valuation of all the real and personal property within the boundaries of twenty-one States. Its distribution among the States and industrial organizations of America reveals most dramatically the degree to which the concentration of economic power and wealth has proceeded in America.

Two States—Montana and North Dakota—had not received a single primary defense contract of more than $10,000 by the end of February, 1941. Three States had each received only one-hundredth of 1 percent in value of those contracts. Three had each received only two-hundredths of 1 percent. Five had each received less than seven-hundredths of 1 percent. Twenty others, including the District of Columbia, had received less than 1 percent each and thirty-five States, including the District, had received in the aggregate only 12.84 percent of the total.

At the other end of the scale, four States—California, Pennsylvania, New Jersey and New York—had received 39.32 percent. These four States, with two additional States, had received 53.75 percent. In fact, 82.25 percent of the total went to only fifteen States. . . .

The geographical concentration, however, is the least significant aspect of the defense picture. An analysis of the contracts shows an even more amazing economic concentration, for approximately 45 percent of all contracts, amounting to about $13,000,000,000, were awarded to six closely interrelated corporate groups.[31]

Before the outbreak of the war in 1939 and the start of the American defense program in 1940, the Army and Navy Munitions Board had compiled lists of plants available for the production of defense material. These lists had covered 11,819 private plants. After fourteen months of defense effort, only 6,657 plants had received defense orders.[32] The concentration of defense orders among industrial concerns was illustrated further in a study of the bureau of research and statistics of OPM. According to this study, which included Army and Navy awards to May 31, 1941, but no construction work, six

[31] Temporary National Economic Committee, *Final Report and Recommendations*, 77th Cong., 1st Sess., Senate Document No. 35 (Washington, 1941), pp. 3–4.

[32] New York *Times*, September 5, 1941.

TABLE 34.—ARMY AND NAVY DEPARTMENTS SUPPLY CONTRACTS IN EXCESS OF $25,000,000, MAY 31, 1941
(IN THOUSANDS OF DOLLARS) *

| | | | |
|---|---|---|---|
| Bethlehem Steel Corp. | $927,000 | Chrysler Corporation | $74,000 |
| New York Shipbuilding Corp. | 507,000 | Packard Motor Car Corp. | 63,800 |
| General Motors Corp. | 490,000 | Tampa Shipbuilding Co., Inc. | 62,100 |
| Curtiss-Wright Corp. | 444,000 | Republic Aviation Co. | 57,300 |
| Newport News Shipbuilding and Dry Dock Co. | 389,000 | Grumman Aircraft Engineering Corp. | 53,900 |
| E. I. du Pont de Nemours & Co., Inc. | 318,000 | American Locomotive Co. | 51,300 |
| Glenn L. Martin Co. | 249,100 | Ingalls Shipbuilding Co. | 50,000 |
| Consolidated Aircraft Corp. | 226,400 | White Motor Co. | 48,400 |
| United Aircraft Co. | 224,500 | Lockhead Aircraft Corp. | 46,500 |
| Douglas Aircraft, Inc. | 221,200 | Vultee Aircraft, Inc. | 41,800 |
| United States Steel Corp. | 209,900 | Fairbanks Morse & Co. | 40,300 |
| Seattle-Tacoma Shipbuilding Co. | 179,600 | Continental Motors Corp. | 40,200 |
| Boeing Airplane Co. | 170,700 | Gulf Shipbuilding Corp. | 39,700 |
| Bath Iron Works | 166,500 | Stevens, J. P., & Co. | 38,200 |
| General Electric Co. | 152,200 | Western Electric Co. | 38,100 |
| Ford Motor Co. | 128,500 | Moore Dry Dock Co. | 38,000 |
| Electric Boat Co. | 126,100 | Atlas Powder Co. | 36,000 |
| North American Aviation, Inc. | 123,900 | Diamond-T Motor Co. | 35,300 |
| Cramp Shipbuilding Co. | 114,800 | Studebaker Corp. | 35,100 |
| Sperry Corporation | 108,000 | Manitowoc Shipbuilding Co. | 30,500 |
| Bendix Aviation Corp. | 107,300 | Hercules Powder Co. | 29,900 |
| Western Cartridge Co. | 102,900 | Lake Washington Shipyards | 29,900 |
| Consolidated Steel Corp. | 98,200 | Savage Arms Corp. | 27,200 |
| Los Angeles Shipbuilding and Dry Dock Corp. | 83,300 | Bell Aircraft Corp. | 27,000 |
| Baldwin Locomotive Works | 82,600 | Todd & Brown, Inc. | 26,800 |
| American Car and Foundry Co. | 81,200 | Northern Pump Co. | 25,800 |
| American Woolen Co. | 74,300 | Williamette Iron & Steel Corp. | 25,700 |
| | | Crucible Steel Co. of America | 25,500 |
| | | Arma Corp. | 25,100 |

* New York *Times*, July 27, 1941.

corporations held 31.5 percent of the total contracts of $9,839,000,000. Fifty-six corporations held nearly three-fourths of all contracts. The concerns holding the largest awards are listed in Table 34.

The largest defense awards had been received by Bethlehem Steel Corporation, a concern which was particularly prominent in the production of naval vessels. In July, 1941, this company's contracts, excluding new plant facilities, had risen further to $1,228,242,000. New plant facilities were valued at $129,555,000, of which $56,000,000 was financed by the company and the remainder by the government.[33]

The concentration of defense orders was further illustrated by the distribution of defense loans as indicated by the loans granted by 321 commercial banks in 101 cities. By April 1, 1941, these banks had granted a total of $1,093,000,000 in defense loans. The distribution of these loans, by the size of total assets of the borrowers, indicated that over 73 percent of the monies lent went to companies with assets of $1,000,000 and over.

TABLE 35.—PERCENT DISTRIBUTION OF DEFENSE LOANS AND AMOUNTS BORROWED, BY ASSETS OF BORROWERS, 321 COMMERCIAL BANKS IN 101 CITIES, APRIL 1, 1941 *

| *Total assets of the borrowers* | *Percent of total number of loans* | *Percent of total amount borrowed* |
|---|---|---|
| Less than $100,000 | 26 | 3 |
| $100,000 to 1,000,000 | 41 | 23 |
| $1,000,000 and over | 30 | 73 |
| Not available | 2 | 1 |

* *Defense*, June 17, 1941.

*Dispersion of defense production.*—During 1941 it became apparent that increasing reliance was to be placed upon the defense production of smaller concerns.[34] The War Department, which formerly

[33] Special Senate Committee Investigating the National Defense Program, *Hearings*, 77th Cong., 1st Sess., July 16, 1941.

[34] With respect to the following paragraph, see testimony of Lieut. Col. Ray N. Hare before the Senate Military Affairs Committee, *Hearings* on the Requisition of Property Bill, 77th Cong., 1st Sess., June 19, 1941.

had refused contracts to any firm with less than $50,000 capital, promised to deal with any company with good standing in its community. In June, 1941, it was reported that a third of the firms to which the department then was looking for the execution of future contracts had fewer than fifty employees. It was also pointed out that changes toward a wider geographical distribution of contracts were under consideration, and that such changes might be facilitated by a separation and classification of bids by different regions in order to enable producers in less favorably located districts to bid successfully against producers enjoying, say, lower freight rates. Dispersion of Army contracts was further facilitated by the replacement of bids by negotiated contracts after a price ceiling had been set.[35]

The attempts to attain a greater dispersion of defense production were not limited to primary contracts. Late in 1940 it had become apparent that the execution of the defense effort could not be achieved by exclusively relying upon the concerns receiving primary contracts. Attention was drawn to the experiences in England, where a program of deliberate subcontracting ("bits and pieces") had been adopted in the late summer of 1938. The British aviation industry, for example, was required to sublet a minimum of 35 percent of its work in government orders to firms outside of the industry itself. This method, it was reported, resulted in greater speed of aircraft production than could have been achieved by means of an expansion of the existing productive plant. In the United States, proposals to "farm out" defense orders were made late in 1940 by Mr. Morris L. Cooke, an industrial engineer associated with the labor division of OPM. It took, however, nearly one year before the other divisions of this agency made adequate provisions for a vigorous program of subcontracting.

Subcontracting was most helpful in the elimination of the first bottleneck which hampered the progress of the defense program, viz., machine tools. The plants, tools and labor of numerous small enterprises normally engaged in production for civilian consumption could be made available for defense work if the primary contractors

[35] New York *Times*, October 16, 1941.

could be induced to sublet part of their orders. Subcontracting was not only instrumental in speeding up defense work but also helpful in minimizing the extent to which scarce resources had to be diverted to expand productive facilities. It also reduced the concentration of workers at the centers of defense production and allayed the problems connected with the shortage of housing facilities at such centers.

It proved impossible to secure an adequate extension of subcontracting by merely advising the primary contractors to make such efforts. This had been done at an early date by the Army and Navy Departments. It would have been necessary to make subcontracting mandatory by inserting suitable provisions in the primary contracts. The first step in this direction was undertaken in August, 1941, when many small plants were threatened by "priorities unemployment" as described above, p. 96. From then on every defense contract of over $50,000 was to contain a statement indicating the percentage of work to be farmed out under subcontracts. A more detailed statement was required for contract proposals of $250,000 and more. Special arrangements were provided for communities threatened by priorities unemployment. These arrangements included a relaxation of the normal procurement procedure designed to enable the procurement officers to pay such prices as were necessary to secure the use of converted facilities in these communities. More novel were arrangements for the placement of orders with associations or corporations of manufacturers organized along industry or community lines, who had pooled their productive resources or labor in order to take up defense work.[36] In September, 1941, OPM's newly created division of contract distribution was given the special function of breaking down large orders of supplies into smaller units and spreading the purchases among as many firms and localities as possible. This agency was also to assist by means of technical advice in the solution of the problems arising from the conversion of non-defense industries and plants to defense production and was to facilitate the transfer of workers to defense production from plants threatened by shut-downs under the influence of material shortages.

Not only did subcontracting require vigorous policies designed

[36] *Defense*, August 26, 1941.

to stimulate the willingness of the primary contractors to submit to such programs, but it was also necessary to collect in a systematic manner information pertaining to available facilities. This was done by means of surveys undertaken by government agencies, industrial organizations and trade unions, and through the organization of so-called defense clinics containing exhibits of "bits and pieces" of required defense materials. Small manufacturers attended these clinics with the view of locating a piece which they were able to turn out in their establishments.

Subcontracting was further facilitated by patriotic and far-sighted activities in numerous communities which pooled the resources of their manufacturers, thereby increasing their productive capacity far in excess of the aggregate of the local manufacturing plants if they were to operate upon an individual basis. Such communities were then able to approach primary contractors in a much more effectual manner than an individual manufacturer could have done. Arrangements of this type were reported from York, Pa., where the manufacturers pooled their equipment and that of other manufacturers in a radius of 25 miles. In Kansas City, Mo., about 150 manufacturers were organized by a local business man. After having pooled their productive resources, they were able to assemble about 800 lathes, 167 radial drills, and an array of machines.[37] Primary contractors, in turn, utilized the facilities of an ever-widening area. A Milwaukee milling manufacturing concern was reported as having farmed out parts of its products to manufacturers in ninety places extending from Marblehead, Mass., to Kansas City, Mo.

*Concentration of non-essential production.*—While dispersion of production is necessary in that sector of the economy which engages in the production of goods essential for war and thus must be expanded, the opposite objective prevails with respect to the production of civilian consumers goods. In the latter sector, production must be concentrated among a few enterprises in order to facilitate the conversion of the others to war production and to save labor and materials.

[37] New York *Times*, December 28, 1940. See also R. L. Duffus, "Little Industry—'What Now?'" New York *Times* Magazine, October 5, 1941.

The traditional cartelization of industry in Germany had facilitated concentration of production during an early stage of the war. Production was concentrated in the so-called "W" firms, whose supply of materials was secured and whose labor was exempted from military service. Standardization of output and abandonment of trade marks prevented waste through product differentiation. Firms whose plants were closed down were kept financially alive by means of subsidies. No information is available indicating the success or lack of success of the concentration of industry in Germany. There are, however, a few reports indicating that in more recent months efforts were made in the direction of greater dispersion of production. There is also no information forthcoming concerning the compatibility of the concentration schemes with the new patterns of wartime location of industry. Under the influence of the war in the air, the earlier concepts of industrial relocation had been made subject to important modifications. It was no longer held that large plants were desirable and that they should be located in regions far remote from the frontier. This pattern had been replaced, at least in thought and writing, by a system of more or less self-sufficing industrial districts (*provinzielle Tauschkreise*), whose continued operations would not be seriously impaired if air attacks should interrupt production in one of them.[38]

Concentration of production was urged in England in 1940,[39] but it was not until February, 1941, that a comprehensive scheme was prepared by the government. On March 4, it was announced that more than fifty British manufacturing industries would be required to concentrate their activities in a few plants and turn over the others to war production. This scheme was limited to manufacturing and did not cover distribution. The various industries concerned included hosiery, cutlery, pottery, textile and finishing trades, cotton spinning, cotton and rayon weaving, shoes, gloves, leather goods, corsets, furniture, gramophones, toilet preparations, toys and many others unessential to war. Most of these factories had been working

[38] Rolf Wagenführ, ed., *Kriegswirtschaft* (Berlin, Junker & Dünnhaupt, 1935), pp. 27ff.

[39] Especially by Mr. T. Balogh. See his "Economic Mobilization," Institute of Statistics, Oxford, *Bulletin*, Vol. 2, No. 10: 6–8 (1940).

part-time, some of them utilizing only 20 percent of their capacity, under the influence of shortages of material and labor. The concentration of production in a few plants working at 100 percent of capacity would reduce overhead costs, set free labor for war production, and facilitate the use of the closed plants for storage purposes, and, where possible, their conversion to war production. The "nucleus" plants would be enabled to keep their labor and receive raw materials; they also might absorb the older workers of the closed-down plants.

The industries were expected to make their own arrangements for the compensation of the closed plants and their reopening after the war. Compensation was not to be paid by the government but by the nucleus firms. Five different types of arrangements were distinguished: [40] (1) The merger. This was regarded as the least satisfactory type of permanent concentration of both ownership and production. Under this method the nucleus firm would either acquire the closed-down firms or would be formed as holding company to own the latter. (2) The method of levy and compensation was suggested for cases with permanent excess capacity. Under this system the nucleus firms would absorb the business of all the other firms and pay to the latter a pre-determined levy upon their profits. (3) Under the transfer of quotas, quotas of production would be fixed for each firm in accordance with its prewar proportion of the volume of total business. The quotas of the closed-down firms would be acquired by the nucleus firms, leaving to the former only indirect connections with the market. (4) All firms might join in a pooling agreement and operate the nucleus firms. For example, a company might be formed in which all would hold shares according to their prewar standing. The owners of the nucleus firms would then lease the plants to the new company and the latter would receive and distribute all profits of the industry. All trade marks and brands would disappear simultaneously. (5) Most desirable would be an agency agreement under which the nucleus firms would produce as agents of the closed-down firms. The latter would acquire the goods at

40 "Methods of Concentration," *Economist*, April 5, 1941, pp. 436–37.

cost and sell them to the public through the normal channels of distribution.

This enumeration of the types of concentration arrangements lists them in an "ascending order of desirability." The standards of desirability were as follows: (1) The arrangements should be of such nature that they could easily be unscrambled in peacetime; (2) No class of industrial rentiers should be created.

The execution of the concentration scheme was bound to meet a number of difficulties. Theoretically speaking, it may be possible to concentrate the production of, say, 100 firms working at 33.3 percent of capacity in 33 firms. But "it would be folly to suppose that you could get economic working, and not increase losses over the whole of the firms, if you spread out the 33⅓ percent of business amongst them all. . . . There are a great many problems overlaying the theory." [41] These problems included the strategic safety of the nucleus firms, alternative uses available for the machinery and space of the closed-down firms, their diversified production, and, most important, the geographical and occupational distribution of the demand for the labor set free by the closing of plants. If the labor would not readily be absorbed in the vicinity, their transfer to other regions would be difficult to accomplish, especially if members of the same family worked in different enterprises.

According to authoritative estimates, the non-essential industries subject to concentration in England employed 28 percent of all workers and contributed 23 percent of the net output in terms of value.[42] It was expected that the schemes would finally result in the transfer of 750,000 workers to war industries. All in all, voluntary concentration schemes had been submitted by 22 of the industries affected by June, 1941. Industries with a small number of large units had made better progress than those with a large proportion of small units. Some schemes submitted by industries of the latter type cov-

[41] President of the Board of Trade before the House of Commons, February 26, 1941. 369 H. C. Deb. 5 s., col. 601.

[42] A. L. Bowley and A. M. de Neuman, letter to the *Times*, March 31, 1941; Neuman, "The Small Industrial Enterprise in Great Britain," *Accountancy* 52: 173–74 (1941).

ered only between one-half and three-fourths of the industry.[43] By October, six months after the announcement of the scheme, about 144,000 workers had been released or were shortly to be released, and about 45,000,000 square feet of factory space had been made available for war production or storage.[44] A register of storage space was compiled to facilitate its use by the various industries. By July, the period allowed for the submission of voluntary schemes had ended, and the Board of Trade started with the nomination of nucleus firms in industries which had not submitted a scheme of their own.[45]

The first concentration scheme was completed in cotton spinning. It had been the original plan of the cotton industry to spread production in wartime in order to facilitate a swift revival of the industry after the war. Concentration, it was argued, would not release labor suitable for war production but cause unemployment and the permanent loss of skilled workers to the industry. Of 50,000 cotton operatives, roughly 30,000 were said to be women; 20,000 of the women were married, with homes to manage besides their industrial work.[46] Since about 200 spinning factories were closed and about 250 listed as nucleus firms, the outcome seems to have been a blending of "spreadover" and concentration. It also seems that the incidence of the concentration scheme fell more heavily upon the smaller firms while the larger were allowed to continue their operations. The maintenance scheme provided for a maximum payment of £7,000 per year for 100,000 spindles (1.4 d. per month per spindle) rendered idle. The monies were to be used for the maintenance of the closed factories, and were collected from the running mills on the basis of 1 d. per month per spindle. Since the scheme provided only for "maintenance," no arrangements were made for the sharing of the profits of the whole industry.[47]

As mentioned before, the concentration scheme, as originally devised, did not extend to enterprises engaged in distribution. The

[43] London *Times*, June 4, 1941.
[44] New York *Times*, October 13, 1941.
[45] London *Times*, July 16, 1941.
[46] *Ibid.*, April 19, 1941.
[47] "Progress of Concentration," Institute of Statistics, Oxford, *Bulletin* 3: 231–32 (1941).

public's contact with retailers is closer than that with any other business, and the closing down of retail outlets had also been deliberately avoided in the German concentration scheme. Distribution was a vast reservoir of manpower, but also the stronghold of small business. After much pressure from all sides a committee was appointed by the President of the Board of Trade in May, 1941, to investigate the possibilities of concentration in the retail trades. Food retailers were, however, still exempted. It was in this field that the concentration scheme was bound to do most harm to small business.[48] The *Economist*, though emphasizing that large firms with mass-production were the backbone of modern industry, pointed out that small enterprises had a number of special and auxiliary jobs which could not be fitted into mass-production because of craftsmanship required or the small scale of operations; that many of the small firms could be made useful for war production by means of local pools of labor, subcontracting, and other methods of industrial dispersion; that in the past they had proved valuable as experimenting grounds; and that they were less endangered by "knock-out blows" due to bombing, and did not expose their labor to the strain of transportation and accommodation resulting from the centralization of production. If closed down, the small firms could still contribute tools and equipment and serve as training grounds for the nucleus firms.[49]

There is little doubt that the concentration scheme will have lasting effects upon England's industrial structure, which, before the war, was relatively free from the curse of cartelization. In some respects, the organization of industry under the concentration schemes resembles that under the N.R.A. Its reception in England can be illustrated by the fact that the *Economist* expressed "unqualified, if somewhat impatient, welcome," and referred to the scheme as a "very substantial advance in the technique of industrial mobilization." [50]

In the United States, no deliberate program of industrial concentration had been formulated by December, 1941. It was, however,

[48] For figures indicating the extent of small businesses affected, see references in note 42, above.

[49] "The Small Firm," *Economist*, May 24, 1941, p. 684.

[50] "Concentration of Industry," *Economist*, March 8, 1941, pp. 297–99.

expected that the progress of the defense effort would confront industry with a situation similar to the one in England, and that similar steps might become necessary to cope with it. These expectations were most dramatically expressed by Mr. Leo Cherne, executive secretary of the Research Institute of America: "The OPM is reliably understood to have compiled a secret list of more than forty industries, numbering thousands of firms, which will have to seriously retrench or possibly close their doors as a result of raw material starvation." [51]

## Monopolies under the War Economy

The monopolistic structure of various segments of the economy has its bearing upon the war economy, while the latter, in turn, does not leave the industrial structure unaffected. On various occasions mention has been made of the reluctance of industries to expand production and productive facilities in response to military needs, and specific cases will be examined in Chapter 8. Conditions in England have been summarized as follows:

> Firms, fearful of post-war competition, are intensely reluctant to mobilize for war output other firms, not normally in the same line of business, that could be brought in to increase production of essential goods. They are unwilling to make public their patents or secret processes, or to have more workers trained for highly skilled processes than they can feel sure of being able to use when the war is over. This explains the curious paradox, greatly unlike what happened during the last war, of trade unions of skilled workers pressing dilution on a generally reluctant body of employers. British capitalism has been steadily practicing restrictive policies during the past two decades—buying up and destroying "surplus" capacity, preventing the entry of new businesses, imposing quotas and regulations of every sort and kind. It does not easily unlearn under war conditions its restrictive habits. . . .[52]

In the United States, the anti-trust division of the Department

[51] Address before the Research Institute of America, New York City, September 1, 1941.

[52] Q. Fabius, "Paying for the War," *Political Quarterly* 11: 345–46 (1940).

of Justice has been able to cope with a few of the worst excesses of monopoly power hampering the defense effort. This division has also been instrumental in investigating restrictions imposed upon defense production by foreign control, and in starting criminal or civil actions in the aluminum, military optical goods, tungsten carbide, airplane fabric, bentonite, and magnesium industries. Concomitant with the activities of the division, the prices of aluminum and tungsten carbide were reduced, and new firms took up production in these fields and in the magnesium and military optical goods industries.[53] The anti-trust division has, however, no authority to cope with those aspects of the monopoly problem which lay outside the scope of the anti-trust laws. These matters were under the jurisdiction of the defense authorities. At a time when unemployed men and resources were still available for an expansion of production, it was often the policy of these bodies to establish priorities rather than to exert pressure in the direction of an expansion of productive facilities. Specific references will be found in Chapter 8.

It is well to remember, however, that imperfections of competition, while creating monopoly power with its concomitant opportunities for restriction and artificial scarcity, are occasionally indicative of a type of industrial organization which lends itself better to wartime coöperation with the government and planning than does a large number of small concerns.

It is generally possible to obtain excellent coöperation from industries in which the number of producers is small and the feeling of public responsibility and the fear of offending those in political power are well developed. By and large, the difficulties of getting coöperation from a large number of producers or of enforcing regulations upon them are greater than those encountered in dealing with a few large companies. Thus far at least, the more competitive industries have been a greater source of difficulty in the defense program than the less competitive ones.[54]

[53] See Temporary National Economic Committee, *Final Report and Recommendations*, 77th Cong., 1st Sess., Senate Document No. 35 (Washington, 1941), pp. 182–89, 262–64.

[54] Theodore O. Yntema, "Some Economic Problems in the Expansion of Capacity to Produce Military Goods," *American Economic Review* 30 sup.: 377 (1941).

Measures of industrial concentration and dispersion do not terminate in themselves but are likely to have far-reaching effects upon the structure of industries. Most probably they will further aggravate the imperfections of competition, though there is the possibility that, in the postwar world, the wartime trend towards industrial concentrations and combinations may be counterbalanced, at least in part, by the large capacities which will then be available for normal production.

In the United States there has been no conscious and deliberate encouragement of industrial combinations and concentrations of the more formal type in order to facilitate the defense effort. Some reassuring statements were made by the Department of Justice pointing out that collective action on the part of industries, if requested by the defense authorities, was not likely to be regarded as unreasonable restraint of trade.[55] Moreover, OPM and the Department of Justice were reported to have arrived at an agreement whereby paid representatives of industry should not act as members of policy-making defense agencies. This was done in order to eliminate violations of the anti-trust laws, and some trade associations executives who had been members of the defense establishments as so-called dollar-a-year men were instructed accordingly.

When the concentration scheme was announced in England, people remembered how powerfully the trend towards industrial combinations and monopolies had been stimulated by the World War of 1914–18. The Committee on Trusts had reported in 1919 that "in every important branch of industry in the United Kingdom there is an increasing tendency to the formation of trade associations and combinations, having for their purpose the restriction of competition and the control of prices," and pointed out that many of these organizations had been created "in the last few years." [56] The *Times*, in commenting upon this report, reminded its readers that "not long after the outbreak of the war one could read in trade journals that the control of supplies had brought near in a few months' time what

[55] *Defense*, October 21, 1941.

[56] Ministry of Reconstruction. Committee on Trusts, *Report* (Cd. 9236, London, H.M.S.O., 1919), p. 2.

trade associations had aimed at for many years. The limitation of supplies put a stop to newcomers. Price-cutters in the retail trade have almost disappeared owing to the scarcity." [57] Price maintenance, it was pointed out, is easy at a rising price level. On the other hand, trade associations offer a convenient machinery for the coöperation with the government and for wartime planning. Sometimes they are better able to keep price increases within limits than industries composed of a large number of centrifugal units. During the first half-year of the war, the strongly organized iron and steel trade "kept the rise in prices well in hand and relatively small," while the unorganized textile industry "suffered from a runaway market with all its disturbing features." The *Times* reported further that the progress of industrial combinations was stimulated by excess profits taxation. Profitable concerns acquired unprofitable ones, "for such purchases were in effect paid for by moneys which would otherwise have gone in excess profits duty to the Revenue. . . ." On the whole, the paper expressed fear and apprehension with respect to the growth of monopoly power. Quoting the passage of the World War report referring to trade associations, "they will become omnipotent, the corporations of tomorrow," the paper concluded: "It is tragic when war injures the structural basis of industry and trade. During 1806–15, with enormously rising wheat prices, small proprietors found it more profitable to rent a large than to own a small farm. The result was the disappearance of the remnants of the English yeomanry."

[57] London *Times*, May 20, 1941.

# CHAPTER VIII

# THE SUPPLY OF STRATEGIC MATERIALS

Definitions of strategic materials accentuate either the military significance of the material or its deficiency in a given country. According to the one view, strategic materials are those which are of specifically military importance; according to the other, the concept includes those materials which are not available within the boundaries of a country to an extent fully satisfying its needs. Adherents of the first view neglect that all materials are of military importance under conditions of total war, since "modern warfare is waged by the nation, and not simply by the army and navy, and everything that enters into the scheme of everyday national life is a contributing factor in the progress of war, whether it be tooth-paste or T.N.T." [1] The second view differentiates by countries and is realistic in that different materials may be strategic in different countries. It must, however, be recognized that, in total war, every material is "strategic" in the sense that it is scarce and that additional supplies would be useful for the furtherance of the war effort at the home front or on the battlefield.

In the following chapter materials are discussed from the point of view of their availability in the various countries, with especial emphasis upon the situation in the United States. The materials are subdivided into power resources; metals, and minerals other than power resources; and textile resources and rubber. Upon a similar basis, foodstuffs are dealt with in the subsequent chapter. Proper emphasis will be given to the specifically military significance of the various materials though no attempts are made to devise a new statistical method of weighing them by the degree of their military usefulness.

[1] G. A. Roush, *Strategic Mineral Supplies* (New York and London, McGraw-Hill Book Company, 1939), p. 2.

## The Role of Strategic Materials

For many years, the United States Army and Navy Munitions Board has prepared classifications of "strategic materials," "critical materials," and "additional materials which might become strategic or critical." The following are the present definitions of strategic and critical materials:

Strategic materials are those essential to national defense, for the supply of which in war dependence must be placed in whole, or in substantial part, on sources outside the continental limits of the United States; and for which strict conservation and distribution control measures will be necessary.

Critical materials are those essential to national defense, the procurement problems of which in war would be less difficult than those of strategic materials either because they have a lesser degree of essentiality or are obtainable in more adequate quantities from domestic sources; and for which some degree of conservation and distribution control will be necessary.[2]

The lists of the materials are subject to frequent changes. As of June 14, 1941, fifteen materials were listed as strategic and nineteen as critical. See lists on p. 220.[3]

If a material is included in the list, this is of legal relevance since various laws contain references to these lists (for example, in connection with the accumulation of stock piles by public agencies).

In the following pages certain other materials are dealt with in view of their great military importance in this or in other countries (power resources, iron ore, lead, steel).

The following public policies pertaining to strategic and critical materials can be distinguished: (1) Collection of information; (2) Restriction of consumption; (3) Stimulation of production; (4) Stimulation of recovery; (5) Stimulation of substitutes; (6) Collection of stock piles; (7) Stimulation of imports and control over exports; (8) Protection of domestic supplies against the enemy; (9) Destruction of supplies of the enemy and economic warfare.

[2] Army and Navy Munitions Board, *The Strategic and Critical Materials* (Washington, March, 1940), p. 3.

[3] The asterisk indicates that the material is discussed in the following pages.

*Strategic materials*

Antimony *
Chromium *
Coconut shell char
Industrial diamonds
Manganese, ferro-grade *
Manila fiber
Mercury *
Mica *
Nickel *
Quartz crystal
Quinine
Rubber *
Silk *
Tin *
Tungsten *

*Critical materials*

Aluminum and bauxite *
Asbestos
Cork
Graphite
Hides
Copper *
Gasoline, 100 octane *
Iodine *
Kapok
Opium
Optical glass
Phenol
Nitrogen compounds *
Platinum *
Tanning materials
Toluol
Vanadium *
Wool *
Zinc and zinc concentrates *

1. The efficient preparation and execution of the war effort requires a systematic program of collecting appropriate information, which must constantly be kept up to date. No information is complete without detailed inventories of available supplies and of military and civilian requirements.

2. Measures designed to restrict consumption can utilize the operations of the price system and discourage consumption by means of higher prices or taxes. More efficient are direct controls through rationing and priorities. These measures have been discussed in Chapters 5 and 7.

3. In wartime, the production of materials in short supply must be vigorously expanded. Measures designed to achieve the desired expansion of production have been discussed in Chapters 5 and 7. It is more difficult to set up general rules pertaining to peacetime production. Where domestic resources are scarce and of inferior quality, tariff protection designed to stimulate peacetime production may cause their exhaustion in time of war. On the other hand, the existence of plants and other facilities for the exploitation of such resources might be desirable in view of the interruption of normal supplies in wartime.

4. In war, the recovery of various materials which might not be

feasible on commercial grounds in peacetime, can be fostered by means of subsidization and other incentives. Moreover, on the higher level of wartime prices, the utilization of various scrap materials is bound to become profitable even though the processes of recovery were too expensive in peacetime. The extent to which scrap has been substituted for virgin material in the past has been subject to considerable variations dependent upon the state of the arts, relative prices and availability of the various materials. Estimates of the year 1928 indicate that for every pound of aluminum, antimony, copper, lead, nickel, tin, and zinc there was marketed 0.41, 0.44, 0.53, 0.30, 0.12, 0.38, and 0.23 pound of salvaged metals, respectively.[4]

5. The production of substitutes is bound to make great progress in war in view of the incentive of higher prices. After the war, many of the new substitutes are likely to be used in place of the original good, since technological progress and experience will lead to the removal of many deficiencies of the substitute and lower its cost. Some examples of substitute products stimulated by the present war will be given in the following pages. Most important seem to be plastic materials, which can be changed in form under mechanical stress without losing their cohesion and are able to keep the new form given to them.[5] There are, however, some aspects of substitute production which expose such production to special dangers in wartime. Production of substitute materials usually requires an elaborate industrial organization composed of a number of large scientific factories. Each part of such a system is closely linked with and dependent upon the working of the others. Hence, plants producing synthetic or substitute products are exposed to aerial attacks to a considerably higher degree than ordinary deposits of raw materials or processing plants.

6. Accumulation of stock piles is of particular importance with

[4] Erich W. Zimmerman, *World Resources and Industries* (New York and London, Harper and Brothers, 1933), p. 775.

[5] "Plastics," *Economist*, July 12, 1941, pp. 48–49. Other substitutes recently developed include pressed steel for cast iron, silver for copper, sintered metal, tin foil, synthetic gum, olive oil substitutes, cork substitutes, burlap substitutes, and bois de rose synthetic. New York *Times*, October 5, 1941.

respect to those materials whose importation may be interrupted in wartime. In the United States, subsidiary companies of the Reconstruction Finance Corporation were organized for the purpose of acquiring adequate stock piles of strategic materials. These companies include the Rubber Reserve Company, Metals Reserve Company, and Defense Supplies Corporation.

7. Friendly commercial relations with the country of origin, commercial control over foreign deposits, adequate shipping space and maintenance of the lines of communication and transportation, are helpful in securing supplies of materials from foreign countries. Undesirable exports of strategic and other materials can be prevented by means of export duties and stricter measures of control.

With respect to the international control over raw materials, it is interesting to note that the present war did not interfere with the operations of a number of commodity-control schemes, particularly those which had been sponsored by the various governments. Though such agreements generally facilitate the dissolution of the scheme should one participant become engaged in war, some of the cartels composed of countries other than the Axis powers have been maintained or renewed during the present conflict. While the tin, tea and rubber schemes continued to operate, the sugar scheme was adversely affected since Germany and the leading German-dominated countries had been partners to it. The sugar cartel limited its activities to the discussion of postwar problems. Private schemes, including the copper, lead, nitrates and steel cartels, expired after September, 1939.

8. The various measures enumerated above are of no help if domestic supplies of materials are allowed to be destroyed or endangered by enemy action. It is, therefore, necessary to supplement them by protection against and prevention of sabotage and other hostile acts.

9. The above measures are designed to strengthen the supply of materials in one's own country. Of similar importance are measures designed to weaken the supply situation in the enemy country. That may be done by strictly military means or by what is commonly referred to as economic warfare. Economic warfare is designed to pre-

vent supplies of materials from reaching the enemy country. It includes such measures as blockades, blacklisting of neutral firms trading with the enemy and control over assets which may be beneficial to the enemy. These measures are further discussed in Chapter 10.

## Power Resources

Power resources are the basis of modern industrial civilization and their utilization has tremendously increased human productivity. Chinese labor is four times larger in numbers than American labor but American labor produces ten times as much as Chinese labor because the latter does not utilize coal, petroleum, water power, and suitable equipment to the extent American labor does. These three power resources are of paramount importance in all industrial countries. The geographical distribution of power production, by sources of power, is as follows:

TABLE 36.—GEOGRAPHICAL DISTRIBUTION OF POWER PRODUCTION, BY SOURCES OF POWER, IN PERCENT OF TOTAL POWER PRODUCTION, 1935 *

| | *Coal* | *Petroleum* | *Water* |
|---|---|---|---|
| America | 35.1 | 75.9 | 46.0 |
| Europe | 51.2 | 15.2 | 44.0 |
| Asia | 11.3 | 8.8 | 9.0 |
| Africa | 1.3 | .1 | .8 |
| Australia | 1.1 | 0.0 | .2 |
| Total | 100.0 | 100.0 | 100.0 |

* Walther Pahl, *Weltkampf um Rohstoffe* (Leipzig, Wilhelm Goldmann Verlag, 1939), p. 20.

The relative importance of the various sources of power in the different parts of the world is illustrated in the following table.

*Coal.*—The shift from coal to other sources of power, which took place during the present century, was more pronounced in the United States than in European countries which continued to rely upon coal to a larger extent. Before the outbreak of the present conflict, the United States, England and Germany used to produce two-

TABLE 37.—RELATIVE IMPORTANCE OF SOURCES OF POWER, BY CONTINENTS, IN PERCENT OF TOTAL POWER PRODUCTION, 1930 *

| | *World* | *North and South America* | *Europe* | *Asia* | *Africa* | *Australia* |
|---|---|---|---|---|---|---|
| Coal | 69.3 | 58.5 | 80.1 | 74.6 | 81.1 | 91.7 |
| Lignite | 4.2 | .2 | 9.2 | 0.0 | 0.0 | 0.0 |
| Petroleum [a] | 20.7 | 35.4 | 5.2 | 17.8 | 18.3 | 0.0 |
| Water power | 5.8 | 5.9 | 5.5 | 7.6 | .6 | 8.3 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

* Pahl, *op. cit.*, p. 21.
[a] Including natural gas.

thirds of all coal, with United States production contributing one-third and Germany and England another. Russian production ranked fourth and was about one-tenth of total world output. The United States, England and Germany exported coal; Russia and Japan were nearly self-sufficient; France imported one-half and Italy nearly all of its consumption.

While territorial expansion in the East resulted in an addition to the coal resources available to Germany, the conquest in the West added a coal-deficit area to the German-controlled territory. France and the other German-dominated countries in western Europe used to rely upon supplies from Britain, and they require more coal than the conquest in the East made available. In 1938, net exports of coal from Germany and Poland were 37,000,000 tons, compared with net imports of all continental countries amounting to 57,000,000 tons. Upon the basis of peacetime demand, the continent is thus short of 20,000,000 tons.[6] The difficulties were aggravated by the heavy demand for coal as a raw material for the various synthetic products manufactured in Germany. The heavy demand for coal, in turn, added to the transportation difficulties and exposed the continental railroad system to great strain.

*Water power and electrical energy.*—Utilization of water power

[6] *Economist*, May 3, 1941, p. 590; New York *Times*, September 5, 1941.

resources is most advanced in those countries whose other energy resources are poor. However, the existence of natural power sites has stimulated the utilization of water power also in those countries which have ample coal deposits.

Germany's consumption of electrical energy increased by 106 percent from 1933 to 1938 and consumption in 1943 is expected to be four times as large as in 1933. In the past, power plants were operated under conditions of large excess capacity, and there is little evidence that generating capacity, in Germany proper, has increased much during recent years. Operation of the industries producing *Ersatz* goods such as synthetic gasoline and rubber require enormous amounts of electrical energy, and so do the iron and steel, copper, aluminum and magnesium industries. While Germany has stimulated the construction of new power plants in Norway, the additions to generating capacity on the continent seem insufficient to meet the considerable increase in the demand for power to produce *Ersatz* goods and similar commodities in a prolonged struggle, when the blockade accentuates the need for these goods.

In 1941, the capacity of the United States to produce electrical energy exceeded that of England, Germany, France and Italy combined. The ratio of steam to water power plants was about two to one. Generating capacity had risen from 40,318,000 kilowatts at the end of 1939 to 41,639,000 kilowatts at the end of 1940. In August, 1941, it was 42,500,000 kilowatts, and was expected to increase to 45,000,000 kilowatts by the end of that year. Actual output was 130,000,000,000 kilowatt-hours in 1939 and 145,000,000,000 kilowatt-hours in 1940. The actual output is always below the potential maximum because the generating capacity of the plants is not fully utilized all the time.

Early in 1941 the Federal Power Commission pointed out that the progress of the defense program called for a considerably larger increase in generating capacity than was anticipated by the electrical utilities. These warnings were amplified by concurrent statements on the part of the Secretary of the Interior. It was therefore a surprise when Mr. Charles W. Kellog, President of the Edison Electric Institute and chief consultant of the light, heat and power unit of

OPM, declared before the annual convention of the Institute on June 3, 1941, that allegations of power shortages were unwarranted. Two days later OPM dissociated itself from the statement of its chief expert, and Mr. Kellog's subsequent resignation from OPM led to the disclosure of an official policy according to which paid officials of trade associations were not to be employed by the defense organization.[7]

A power shortage which occurred in the Southeast during the summer months of 1941 was described by the Federal Power Commission as the result of the then existing drought, of rapidly rising defense needs, and of the fact that the Aluminum Company of America had continued to depend upon large quantities of seasonal power although the emergency called for continuous production. Defense production, particularly aluminum production, requires enormous amounts of power. In view of the defense needs in the Southeast with its aluminum, ferro-alloys, steel and chemical industries, it became necessary in June, 1941, temporarily to reduce the power consumption of non-defense industries in that region for the duration of the drought.

The amount of electrical energy available can be increased by means of four methods. (1) If the power-consuming industry engages upon continuous operation, the existing capacity for power production can be more fully utilized. The so-called load factor in 1940 was reported as 40 percent, indicating the theoretical possibility of multiplying output two and a half times. While it is not possible to utilize the full capacity at all times, continuous operations of industry might facilitate an increase in output of electricity of about 20 percent. (2) Though over-all capacity may be very large, not all capacity is available at exactly such places where it is needed most. By means of inter-connecting systems, different regions can make their power resources available to one another. Consequently, a "pool" was formed in the summer of 1941 to bring together the generating facilities of 17 states, and the formation of additional pools was announced in subsequent months. (3) The output of hydroelec-

[7] No other resignations were announced, however, or came to the attention of the public.

trical power can be increased through the diversion of additional water. This method was used to increase the amount of power derived from the Niagara Falls. (4) Most important, though most time-absorbing, is the construction of new plants to produce hydro-electrical or steam power. Late in the summer of 1941, an elaborate program of expansion was formulated, designed to add to the 8,500,-000 kilowatts then on order another 13,500,000 kilowatts. At that time, existing capacity was 42,500,000 kilowatts. In view of the time required for the execution of a construction program of such magnitude, capacity at the end of 1942 was not expected to exceed 48,000,-000 kilowatts. The whole program, when completed, was estimated to result in a capacity of 63,700,000 kilowatts by the end of 1946. It was further estimated that defense requirements in 1943 would absorb 20,000,000 kilowatts, 11,000,000 of which would have to displace normal loads.

The proposed expansion would not change to any great extent the proportion of hydroelectric to steam power. However, since the newly established hydroelectrical power plants were to be public enterprises, the generating capacity of public power plants would increase from 15 to about 21 percent of total power-generating capacity. This has been reported as one of the reasons for the reluctance with which the electrical utilities were inclined to admit shortages in capacity. The utilities were also said to be in fear of the post-emergency situation when the greatly enlarged capacity might force prices down while the utilities would be burdened with debt incurred for financing their expansion. If the latter was financed by mortgages of the Reconstruction Finance Corporation, "the finish could be that the government would take over the entire power market without physically confiscating private property." [8] However, since the expansion planned in 1941 does not deviate to any great extent from the industry's rate of growth observed during the 'twenties but discontinued during the 'thirties, it should not be expected that there will be no use for the additional electrical energy, which the country will be capable of generating, after the conclusion of the emergency period. Moreover, while the useful life of

[8] Mr. Arthur Krock in his column in the New York *Times* of July 30, 1941.

the projects is too long to permit their swift amortization during the emergency, increased profits from capacity operations can be used to bolster depreciation reserves, and this "may well be an anchor to windward against whatever financial and industrial storms may hereafter arise." [9]

Of all projects designed to increase generating capacity, the St. Lawrence power project was the subject of most controversy. This project was expected to make available industrial power for 300 miles at a rate of 3 to 5 mills a kilowatt-hour, compared with the then prevailing rates of 1 to 1½ cents.[10] While the St. Lawrence power project would increase the power supply of the Northeast by 2,200,000 horsepower of electrical energy, a St. Lawrence seaway project to be undertaken simultaneously with the power project was designed to increase the shipbuilding capacity of the Great Lakes shipyards and permit their use for naval construction. In a message of June 5, 1941, the President urged Congress to enact legislation authorizing the immediate development of the two projects. The President pointed out that "the seaway . . . will provide a great highway to and from important defense production areas. It will cut by more than a thousand miles the stretch of dangerous open water which must be traveled by supplies to Great Britain and strategic North Atlantic bases." However, the projects, when completed, were bound to affect the competitive position not alone of the electrical utilities but of wide industrial areas and powerful groups, including the railroads and aluminum interests. The project thus had to meet a stupendous array of opposing forces. As the *Economist* reported, "the opponents of the waterway are said to have organized the most powerful lobby ever operated in Washington for the purpose of frustrating the project." [11] It was pointed out that the construction of the projects requires considerable amounts of labor and material for a period of four years, and that the St. Lawrence River is nav-

[9] Address of Basil Manly, of the Federal Power Commission, before the fifty-third annual convention of the National Association of Railroad and Utility Commissioners, August 26, 1941.

[10] Testimony of Brigadier-General Thomas M. Robins, assistant chief of army engineers, before the House Rivers and Harbors Committee, 77th Cong., 1st Sess., July 8, 1941.

[11] August 2, 1941, p. 136.

igable for only seven months of the year. To these arguments the reply was made that the load of the railroads would be most heavy during the months when the seaway would be open; that the construction of steam power plants would likewise absorb labor and material without making available large amounts of energy at low costs as the St. Lawrence project would; and that steam power plants, though under ordinary circumstances built faster than water power plants, would require a larger amount of mechanical machinery such as boilers and condensers, which would not readily be available under conditions prevailing in 1941 and 1942.

*Petroleum.*—Oil, in the words of the French Premier Clemenceau, is the blood of the battles which wins the wars. "Because of its high calorific value per unit of weight, [gasoline] is the ideal motor fuel, that is, the ideal fuel for those forms of locomotion which emphasize speed, ease of operation and light weight of engine and fuel per horse power." [12] Fuel oil and lubricating oil are indispensable for all vehicles of mechanized warfare on land and sea and in the air. Besides its use for military purposes, oil has become of great importance in an ever-widening sector of industry and agriculture. The large amounts of oil required for various military purposes have been estimated as follows:

> A German Panzer division, with more than 400 light and medium tanks, 3,300 other motor vehicles and more than 11,000 men, might well use more than 40,000 gallons of gasoline and fuel oil in a 100-mile movement. A single-engine pursuit plane at cruising speed at around 8,000 feet altitude has a consumption of forty to fifty gallons an hour. For a 1,000-horsepower engine at full speed the consumption might increase to twice this figure.
>
> Guns need oil, soldiers' boots need oil. The American 155 mm. howitzer, for instance, has eighty different lubricating places, about one-quarter of which need attention each day. The gasoline ranges used in the American Army consume about 720 gallons of gasoline per division per day for cooking alone.[13]

The geographical distribution of petroleum production before the outbreak of the war in 1939 is illustrated in the following table.

[12] Zimmermann, *op. cit.*, p. 485.
[13] New York *Times*, September 19, 1941.

TABLE 38.—PRODUCTION OF PETROLEUM, BY GROUPS OF COUNTRIES, IN PERCENT OF TOTAL PRODUCTION, 1938 *

| | |
|---|---|
| United States | 61 |
| Mexico, Venezuela, West Indies, Peru, Colombia, Ecuador | 14 |
| Russia | 11 |
| Iran, Iraq, Arabia, Bahrein Islands, Egypt | 6 |
| Netherlands Indies, British India, British Borneo | 3.5 |
| Europe | 3 |

* Pahl, *op. cit.*, p. 36.

Of all industrialized countries, only the United States and Russia have sufficient resources of petroleum to meet their requirements. Production of natural petroleum in Germany and Japan falls short of consumption by over 90 percent, and, in France and Italy, by nearly 99 percent. European production is concentrated in Poland and Rumania in deposits which are threatened by exhaustion.

The production of synthetic petroleum was stimulated in Germany thirty years ago by research pertaining to the formation of coal in the earth. These researches led to the production of synthetic coal from cellulose, the woody part of plants. When the synthetic coal was compressed with hydrogen, 70 percent of the resulting product was found to be soluble in benzol, a by-product of coke. In subsequent experiments, natural coal was compressed with hydrogen, and hydrogen was also combined with gases emitted from crude petroleum when exposed to cracking. Oil production from coal was stimulated by the World War of 1914–18 and the armament program of the 'thirties. Before the outbreak of the war in 1939, German synthetic oil production was estimated as about equal to one-half of peacetime requirements. The synthetic product, however, is uneconomical in that it requires much more labor and capital than the natural product. The same is true with respect to other synthetic motor fuels used in Germany, including gas derived from brown coal, and methane, a constituent of natural gas and coal gas.

Synthetic oil does not seem to have the qualities required for avia-

tion or for lubrication. Synthetic oil plants are highly sensitive to air attacks. Expert opinion indicates that Germany's total oil supplies would be sufficient only if synthetic plants were kept intact; if there would be no interference with the production and with the refining of home-produced crude oil; if Rumanian production was maintained upon a stable level; and if there would be no interference with transports from that country.[14] Before the outbreak of the war in 1939, that part of Europe now under the domination of the Nazis had depended upon imports for roughly 60 percent of the petroleum consumed in the area.[15] The prewar consumption of oil in continental Europe is indicated in the following table.

TABLE 39.—ANNUAL OIL CONSUMPTION OF THE CONTINENT OF EUROPE BEFORE THE WAR (IN THOUSANDS OF METRIC TONS) *

| | *Total* | *Motor fuels* | *Kerosene* [a] | *Gas and fuel oil* [b] | *Lubricating oils* |
|---|---|---|---|---|---|
| Germany, Austria, Italy | 8,250 | 3,700 | 330 | 3,500 | 720 |
| Rumania, Hungary, Bulgaria | 2,060 | 255 | 280 | 1,470 | 55 |
| Occupied territories | 9,060 | 4,460 | 770 | 3,330 | 500 |
| Sweden, Switzerland, Finland | 1,930 | 890 | 205 | 730 | 105 |
| Total | 21,300 | 9,305 | 1,585 | 9,030 | 1,380 |

* *Economist*, June 21, 1941, p. 833.
[a] Including white spirit.
[b] Including small quantities used for ships' bunkers.

The annual minimum needs of the region, apart from military requirements, are estimated as 8,700,000 tons, with 2,800,000 tons of

[14] *Manchester Guardian Weekly*, November 1, 1940.
[15] Cleona Lewis, *Nazi Europe and World Trade* (Washington, Brookings Institution, 1941), p. 97.

motor fuels, 800,000 tons of kerosene, 4,000,000 tons of gas and fuel oils, and 1,100,000 of lubricating oils. If military requirements are added, the total may rise by an amount between 3,600,000 and 25,000,000 tons. Actual military requirements depend upon the nature and intensity of the operations, and such estimates as have been made vary between the figures reported above. If military requirements are assumed to be about 10,000,000 tons, total annual requirements are in the neighborhood of 18,000,000 tons. The potential annual supplies at the disposal of the Nazis, including their own production of oil and substitutes and "what they may hope to secure from Russia" have been estimated as 11 to 12,000,000 metric tons.[16] This would indicate an all-around deficit of 6 to 7,000,000 tons, but there is as yet no evidence that the incidence of this deficit is borne by the German military machine.

The invasion of Russia reduced oil supplies for Germany by an estimated 700,000 tons per year. Though this amount is not particularly large, the Russian oil would have been helpful for lubrication and for Diesel motors, purposes for which German resources are especially scarce. Whether Germany is able to obtain all the Rumanian oil seems doubtful in view of reports that Rumanian oil was sold to Turkey throughout the summer of 1941. This may indicate difficulties of transporting oil over the Danubian waterway and the heavily utilized railway systems of eastern Europe.

Russia is second to the United States in oil production. The output of crude oil was 33,000,000 tons in 1940. However, the domestic requirements are very large in view of the mechanization of industry and agriculture. Oil was rationed in 1940 and exports declined steadily. Any large-scale diversion of Russian oil would entail a reduction of industrial and agricultural output. Russian oil deposits are concentrated in the Baku district on the Caspian Sea south of the Caucasus Mountains. This district contains the richest oil fields of the world with a daily output of 500,000 barrels. The refining plants are located in the same region. Another 125,000 barrels are produced at Grozy, which is located north of the Caucasus Mountains, and in the Ural Mountains.

[16] *Economist*, June 21, 1941, p. 833.

Destroyed oilwells can be repaired in two to three months. Construction of refining plants requires more time, since the construction of new plants may take from one to two years. Transportation difficulties would be likely to prevent any large-scale refining of Russian oil in western Europe.

Domestic oil production in Japan does not suffice for more than 10 percent of domestic requirements. Annual production is estimated at 3,500,000 barrels. However, Japan has been accumulating oil stocks since the early 'thirties, and the cessation of oil shipments to that country will have no serious effects until these reserves are used up. There is no exact information available pertaining to the extent of the oil stocks but experts agree that they may suffice for one to two years. In 1940, the United States ceased to export high-octane aviation oil to Japan. In August, 1941, the United States practically stopped the export to Japan of motor fuels and oils suitable for aircraft. The cessation of these supplies took place within the framework of United States export control regulations, which permit of elastic interpretation. The export of other oil products was to be limited to the usual or prewar quantities. Japan, however, has refining facilities to produce aviation fuel from crude oil, and in consequence, any oil imported to Japan was "suitable for aircraft." United States shipments of crude oil to Japan ceased in July, 1941, subsequent to the freezing of Japanese assets in the United States. The British Empire and Netherlands Indies announced similar policies and established controls which were easily transformed into a complete embargo.

In the United States, the reduction of sales of oil resulting from the loss of the European markets was offset by increased demand for defense requirements. Oil production, however, remained under the ordinary restrictions, and no new capacity was held necessary for refining ordinary oil products. The expansion of capacity, which took place, was limited to the industry producing high-octane gasoline suitable for aviation. While an increase of 25 percent was anticipated in June, 1941, announcements in August of the same year pointed to a doubling of existing capacities. Plans to treble it were reported in September. Daily production of this type of gasoline was then 40,000 barrels, with a peak demand of 120,000 barrels expected

for the summer of 1942. The construction of new facilities requires about eight months.

While there was no overall shortage of gasoline, much of the oil was not at such places where it was needed. In conjunction with the diversion of oil tankers to British service in the spring of 1941, the transportation of oil to the North Atlantic States was impeded by a shortage of tanker space. The volume of oil needed in this highly industrialized region was estimated as requiring 260 tankers, and each batch of 25 tankers transferred to the British was said to reduce the flow of oil to the East coast by about 100,000 barrels a day, or one-twelfth of average daily consumption. To cope with the resulting supply problem, the Secretary of the Interior was appointed Petroleum Coördinator for National Defense in May, 1941, and petroleum exports from the East coast were prohibited during the subsequent month, with the exception of exports to the British Empire, Egypt, and countries in the Western Hemisphere. The population of the North Atlantic States was advised to save oil and substitute coal for it wherever possible. Alternative transportation facilities, including tank cars and pipe lines, were considered, and plans announced for the construction of new tankers. In June, 1941, consumers of oil in the Eastern states were requested to reduce their purchases by 20 to 30 percent. All-night closing of service stations followed. After these measures had not proved successful, gasoline supplies to retailers were reduced by 10 percent.[17] The restrictions were lifted in October, when tankers were returned by Britain and oil transport by rail increased.

### Metals, and Minerals Other Than Fuels

The following discussion of mentals, and minerals other than fuels, is subdivided into three groups: (1) iron ore and ferro-alloys used in the iron and steel industry; (2) non-ferrous metals; (3) non-metallic minerals. These groups are composed of the following materials: [18]

[17] *Defense*, August 19, 1941.

[18] Cf. the authoritative work of G. A. Roush, *Strategic Mineral Supplies* (New York and London, McGraw-Hill Book Company, 1939), from which much of the following discussion is derived.

| (1) | (2) | (3) |
|---|---|---|
| Iron ore | Copper | Mica |
| Manganese | Lead | Iodine |
| Vanadium | Zinc | Nitrogen. |
| Nickel | Tin | |
| Chromium | Aluminum | |
| Tungsten | Magnesium | |
| | Antimony | |
| | Mercury | |
| | Platinum | |

*Iron ore; steel.*—The geographical distribution of iron and steel production is indicated in the following table.

TABLE 40.—PRODUCTION OF IRON AND STEEL IN VARIOUS COUNTRIES, IN MILLIONS OF LONG TONS *

| | *Pig iron, 1938* | | *Steel, 1939* | |
|---|---|---|---|---|
| United States | 19.6 [a] | | 47.6 | |
| U.S.S.R. | 15 | | 18.5 | |
| Great Britain | 6.9 | | 13.5 | |
| Germany | 18.7 | 32.6 | 24 | 43.6 |
| France | 6 | | 8.4 | |
| Belgium | 2.5 | | 3 | |
| Luxemburg | 1.6 | | 1.8 | |
| Czechoslovakia | 1.2 | | 1.3 | |
| Poland | 1 | | 1.6 | |
| Italy | .9 | | 2.4 | |
| Sweden | .7 | | 1.1 | |
| Japan | 3.6 | | 6.3 | |
| Total (incl. all others) | 83 | | 135 | |

* *Statesman's Year-Book, 1940* (New York, The Macmillan Company, 1940), p. XIX. By permission of the Macmillan Company, publishers.

[a] 37.7 in 1937.

Before the outbreak of the war in 1939, Germany and England were the only leading producers of steel which imported considerable amounts of iron ore. In order to attain a higher degree of independence of foreign supplies, Germany, during the 'thirties, had stimulated the

exploitation of a number of domestic low-grade deposits. It was for this and related purposes that the Hermann-Göring Works were founded, a vast public corporation, which employed over 600,000 workers in 1940. From 1933 to 1938, the production of iron ore increased threefold. After the defeat of France and the occupation of Luxemburg, German requirements could be met completely through shipments from the Lorraine fields and from Luxemburg.

Russian iron ore deposits are located at Krivoy Rog, west of the Dnieper River, which was reported to have supplied 60 percent of the Russian iron ore output. The remainder was produced in the Urals (30 percent), central Russia, the Crimea and Siberia (10 percent). The district of Krivoy Rog was invaded by German troops late in the summer of 1941.

Japan is dependent upon shipments of iron ore, scrap iron and pig iron from the United States and the British Empire.

In October, 1939, steel production in the United States exceeded the previous monthly high of 5,920,596 net tons of 1929. Since then, steel output continued to increase. In May, 1941, the chairman of the United States Steel Corporation informed the stockholders that the corporation alone had a productive capacity greater than that of Germany as then constituted. Figures indicated that the corporation had a yearly capacity of 29,720,000 net tons of steel ingot, or 35 percent of the United States total of 84,152,292. If the corporation operated at its then existing rate for a full year, the chairman announced, it would have an annual productive capacity about equal to that of Great Britain, France and Belgium combined at the time the war broke out.[19]

[19] On September 3, 1941, Hanson W. Baldwin, military expert of the New York *Times*, estimated that "the steel production of German-controlled territories has increased from about 24,000,000 tons in 1938 to about 45,000,000 tons (probably not actual, but potential) today, as compared with Britain's 10,000,000 to 12,000,000 tons (actual)." In December, 1941, the following estimates of steel producing capacity were made public by the American Iron and Steel Institute. British Empire, 20,600,000 tons; Russia, 21,800,000 tons (with about 60 percent situated in the central and southern areas); Germany, Austria, Czechoslovakia, Poland, 29,600,000 tons; France, 10,700,000 tons; Belgium, 4,500,000 tons; Japan, 7,100,000 tons; Italy, 3,000,000 tons; Luxembourg, 3,000,000 tons; Hungary, Spain and Sweden, 2,700,000 tons. Total capacities available for the Axis add up to 60,600,000 tons. New York *Times*, December 11, 1941.

Steel requirements for national defense, including shipments to Britain, were estimated to represent about 25 percent of the industry's capacity in May, 1941. Consequently there was never any doubt on the part of experts connected with the industry that the strictly military requirements could be met without any large-scale expansion of the productive facilities of the steel industry. It was, however, estimated at an early time that the civilian demand for steel would increase with the national income, and that the existing capacity together with the originally planned increase of one to two million tons would be insufficient to meet the total demand. During the ensuing discussion it was pointed out that the productive capacity of the American steel industry during the World War of 1914–18 had increased by 37 percent, from 39,689,265 gross tons in 1914 to 54,482,740 gross tons in 1919. It was also pointed out that a large-scale increase in capacity would divert men and materials from more essential work and that it would take one to two years before the additional capacity would become available. Since much of the expected increase in civilian demand would originate in the automobile and related industries, it was further expected that the curtailment of the production of these industries because of shortages of other materials would also place a ceiling upon the civilian demand for steel.

In view of these considerations, the attempts of those persons who had urged a large-scale expansion of steel production capacity late in 1940 were unsuccessful in overcoming the prevailing spirit of restrictionism until late in 1941.[20] In the spring of 1941 it became obvious that the demand had been greatly underestimated. The use of steel for non-essential civilian purposes was restricted in May and steel was placed under complete priority control in August. At that time it was declared in the priority order that "the national defense requirements have created a shortage of steel . . . for defense, for private account, and for export." A steel deficit of 11,000,000 tons was officially predicted for 1941. It was then that the President advised OPM to prepare plans for the expansion of steel producing

[20] See Memorandum of the National Economic and Social Planning Association, New York *Times*, January 12, 1941. For basic material cf. National Resources Planning Board, *Capital Requirements. A Study in Methods as Applied to the Iron and Steel Industry* (Washington, Government Printing Office, 1940).

capacity by 10 to 15,000,000 tons. Such a measure, which had been advocated much earlier under much more favorable conditions, but was declined under the influence of a report of Mr. Gano Dunn of February 22,[21] had by then become imperative in view of steel shortages for defense items, shells, freight cars and other essential goods. In October, 1941 it was reported that lack of steel had held up for two months work on war vessels at the Philadelphia, New York, and other Navy Yards. It was pointed out that the Navy had building facilities to absorb twice as much steel as it was receiving. The shortage was greatest in rolling steel. This occurred in the same year when the steel mills had produced millions of tons of steel for automobile production.[22]

A detailed program of expansion, limited to 10,000,000 tons, was not announced before September 30, 1941. At that time, capacity was 86,000,000 tons, with another 3,000,000 tons under construction. Of the 10,000,000-ton program, another 3,000,000 tons were in the initial stages of construction. The expansion program was expected to require two years for completion and would increase the steel producing capacity of the United States to 99,000,000 tons a year, reportedly more than double that of the Axis powers. An additional expansion of 5,000,000 tons was urged by OPM's new steel consultant, W. A. Hauck. Contrary to the earlier opinion, it was now held that "the 10,000,000-ton expansion program barely covers the additional capacity required for needed specific expansion projects."[23] The 10,000,000-ton program required an estimated diversion of 2,250,000 tons of ingot and of 50,000 men for construction work. Much had been made of this argument in the prolonged discussion which had delayed the expansion for many months, but no reference was made to the fact that this represented a mere fraction of productive re-

[21] This report had been prepared for the President by Mr. Dunn, a consultant of OPM commonly associated with the steel industry. On May 28, Mr. Dunn submitted a new report which was in sharp contrast to the former. While the first report contained estimates of surplus capacity of 10,100,000 tons for 1941 and 2,100,000 tons for 1942, deficits of 1,400,000 and 6,400,000 tons were calculated in the second. Mr. Dunn subsequently resigned. New York *Times*, March 1, May 29, 1941; *Defense*, June 3, 1941.

[22] New York *Times*, October 9, 1941.

[23] *Ibid.*, October 2, 1941.

sources which the automobile industry was allowed to absorb in 1941.[24] When the program finally went under way late in 1941, spokesmen of the steel industry pointed out that the material shortages which by then had come into existence would do much to delay it.[25]

*Manganese.*—Manganese is essential for the production of ordinary steel. No other material is at hand which fulfills the functions of deoxidizer and desulfurizer as cheaply and efficiently. In times of emergency, low-grade deposits can be made useful.

The geographical distribution of manganese production is illustrated in the following table. As the table indicates, there is no positive correlation between steel and manganese production, and, with the exception of Russia, all leading steel producing countries obtain manganese supplies from abroad.

TABLE 41.—PRODUCTION OF MANGANESE ORE, BY COUNTRIES, IN PERCENT OF WORLD PRODUCTION, 1933–37 *

| | |
|---|---|
| Russia | 53·9 |
| India | 15·3 |
| Gold Coast | 9·7 |
| South Africa | 5·3 |
| Brazil | 2.3 |
| Egypt | 2.0 |
| Cuba | 1.8 |
| Czechoslovakia | 1.7 |
| United States | ·7 |
| Other countries | 7·4 |
| Total | 100.1 |

* G. A. Roush, *Strategic Mineral Supplies* (New York and London, McGraw-Hill Book Company, 1939), p. 45.

Nazi Europe supplied more than 90 percent of the area's consumption of manganese from imports in 1937.[26] There are only a few high-grade deposits in Germany, and wherever possible, low-grade

[24] See above, pp. 96–99.
[25] Address of Walter S. Tower, president of the American Iron and Steel Institute, before the Farm Equipment Institute, Chicago, Ill., October 2, 1941.
[26] Lewis, *op. cit.*, p. 106.

ores have been exploited in spite of excessive costs. All European countries have accumulated considerable stock piles during recent years. Until the outbreak of hostilities with Russia, Germany drew large quantities of manganese from that country. Russian manganese deposits are located at Nikopol, a town on the Dnieper, where about 30 percent of the annual output is mined, and in the Caucasus on the eastern shore of the Black Sea. Nikopol was taken by the Germans in the summer of 1941. Had not the Dnieper Dam been destroyed by the Russians, the location of the Nikopol mines on the then navigable part of the Dnieper would have facilitated the transportation of the ore over the sea by way of the Rumanian or Danubian ports.

Japan is dependent upon manganese shipments from India and Malaya.

Before the outbreak of the war in 1939, the United States used to import 90 to 95 percent of her manganese requirements. Utilization of domestic low-grade deposits can be expanded in case of an emergency. In 1918, imports fell to 67 percent of consumption. During the 'thirties, Russia, the Gold Coast and India used to supply the bulk of United States imports. After the outbreak of the war in 1939, imports from Russia and India were reduced and imports from Latin America stimulated. Brazilian production in 1941 was twice that of 1940. Stock piles in the United States were sufficient in the summer of 1941 to meet industrial needs for sixteen months. In case of an emergency, an expansion of domestic and Cuban production could carry the country through 1943.

*Vanadium.*—Vanadium is another essential alloy used for some cast-iron and steel forgings. It is not available in Nazi Europe and Japan, the latter country being dependent upon shipments from the United States, the British Empire and Peru. The United States produces 15 percent and consumes 25 percent of world production. Supplies from Peru, which is the most important exporter of Vanadium, can be expanded. This country undertook in 1941 to make her entire supply available to the United States.

*Nickel.*—Nickel is important because of the great variety of uses to which it can be put, including alloys for the manufacture of guns,

armorplate, heavy machinery and transportation equipment. Nickel is also used as surface coating because of its tensile strength, ductileness and anticorrosive quality. Monel metal, a nickel alloy, is used for airplanes and ships, and copper-nickel alloys are used for bullet jackets. Bronze and brass can be substituted for some of these uses.

During the period from 1933 to 1937, Canada produced 87 percent of total nickel output. Seven percent was supplied by New Caledonia, a part of the French colonial empire now in the hands of the Free French, and the remainder, in the main, by India, Greece and Norway.[27]

Germany has a few deposits of her own and can meet a small percentage of her requirements through supplies from Norway and Greece. Nickel coins were called in in France and Italy, indicating the shortage in Nazi Europe. Finnish nickel mines in Petsamo were expected to start operation in 1941. This was most likely delayed on account of the hostilities in eastern Europe. Japan used to absorb the bulk of the exports from New Caledonia; her domestic supply, which has been exploited since 1938, covers only 10 percent of her requirements. Domestic production in Russia is sufficient to meet only 20 percent of requirements but can be expanded.

The United States obtains nickel principally from the Canadian International Nickel Company. Though imports from Canada were increased considerably, supplies were reported to be short of combined military and civilian requirements by 26 percent in the spring of 1941. Since then, nickel has been under strict priority control.

*Chromium.*—Chromium is a component of steel alloys which require special hardness and resistance to corrosion. It is used for the production of armorplate, armor-piercing projectiles, gun carriages, naval vessels and airplanes. There is no adequate substitute for chromium. Chromite, the commercial ore of chromium, is found in a large number of countries.

Nazi Europe has considerable deposits in Greece, Yugoslavia and Norway. The Turkish output was purchased by Great Britain and France in its entirety at the outset of the war. Turkish production can be greatly expanded and Germany used to receive large supplies from

[27] Roush, *op. cit.*, p. 83.

that country before the outbreak of the war. Since then exports to Germany have ceased completely, and attempts on the part of the Nazis to obtain Turkish supplies have been unsuccessful.[28] Japanese

TABLE 42.—PRODUCTION OF CHROMITE, BY COUNTRIES, IN PERCENT OF WORLD PRODUCTION, 1933–37 *

| | |
|---|---|
| Russia | 21 |
| Turkey | 16.9 |
| Southern Rhodesia | 16.1 |
| South Africa | 10.6 |
| Cuba | 6.9 |
| New Caledonia | 6.2 |
| Yugoslavia | 5.7 |
| India | 4.6 |
| Japan | 3.4 |
| Greece | 1.9 |
| United States | .1 |
| Other countries | 7 |
| Total | 100 |

* Roush, *op. cit.*, p. 111.

production is sufficient to meet requirements. With respect to the United States, there have been considerable variations in the reliance upon the various sources of imports. The domestic supply is negligible under normal circumstances but can be expanded in times of stress. In 1918, 44 percent of United States consumption was supplied from domestic sources. During the 'thirties, most of the imports came from Rhodesia, New Caledonia, Cuba, South Africa, Turkey, Greece, India and the Philippines. In more recent times, imports were more heavily drawn from South Africa, the Philippines and Brazil. There are also Cuban and Canadian deposits. The United States stock pile was sufficient in the summer of 1941 for one year's requirements.

*Tungsten.*—Tungsten imparts special hardness to its alloys and is used in the production of high-speed machine tools. There are also a number of distinctly military uses of tungsten. For these, substitutes

[28] In October, 1941, the Turkish government agreed to deliver chromium to Germany in 1943, after the expiration of the agreement with Great Britain.

are available. World production of tungsten, which is widely dispersed among the various parts of the globe, is shown in the following table.

TABLE 43.—PRODUCTION OF TUNGSTEN, BY COUNTRIES, IN PERCENT OF WORLD PRODUCTION, 1933–37 *

| | |
|---|---|
| China | 38.8 |
| Burma (India) | 20.0 |
| United States | 9.4 |
| Malaya | 7.8 |
| Bolivia | 5.4 |
| Japan | 5.0 |
| Portugal | 4.9 |
| Argentina | 2.1 |
| Australia | 2.0 |
| Indo-China | 1.9 |
| Other countries | 3.0 |
| Total | 100 |

* Roush, *op. cit.*, p. 141.

Before the outbreak of the war in 1939, Germany used to receive the bulk of her tungsten supply from China, Burma, Australia and Bolivia. Spanish and Portugese deposits are under British financial control. Early in 1939, an English concern was successful in securing an export monopoly of large parts of the production of the nationalized Chinese deposits, adding in this manner to the supply difficulties which the outbreak of the war created for Germany. Stimulation of her own domestic production does not secure more than a few hundred tons per year.

Japan has considerable deposits of her own and can supplement her production through shipments from Indo-China. Chinese production has suffered from disturbances and shifts in political control resulting from the Japanese invasion of South China in 1938.

Production in the United States, under normal circumstances, is sufficient for about one-half of consumption. Domestic production is being stepped up to secure increasing supplies. The stock pile was low in 1941 owing to the interruption of imports from China while the

Burma Road was closed. Chinese supplies accounted for nearly 80 percent of imports to the United States before the outbreak of the war in 1939, the remainder being divided among Malaya, Australia, and Latin-American countries. In 1940, supplies from the latter group were stepped up and contributed over one-half to United States imports. In May, 1941, the Metals Reserve Company, subsidiary of the Reconstruction Finance Corporation, made arrangements with Bolivian producers securing the entire Bolivian supply for the next three years. In December, similar arrangements were made with Argentina.

*Copper.*—Copper has a high degree of conductivity and can be worked with relative ease. Its most important uses are in the electrical industries and in the production of alloys such as brass (copper and zinc) and bronze (copper and tin), which are of military importance. Copper is under Anglo-American control. The geographical distribution of copper production is indicated in the following table.

TABLE 44.—PRODUCTION OF COPPER, BY COUNTRIES, IN PERCENT OF TOTAL PRODUCTION, 1938 *

| | |
|---|---|
| United States | 25.1 |
| Chile | 17.3 |
| Canada | 12.7 |
| Northern Rhodesia | 12.6 |
| Belgian Congo | 6.1 |
| U.S.S.R. | 4.8 |
| Japan | 4.2 |
| Mexico | 2.1 |
| Yugoslavia | 2.1 |
| Other countries | 13.0 |
| Total | 100 |

* Royal Institute of International Affairs, *World Production of Raw Materials*. Information Department Papers, No. 18b (New York, Oxford University Press, 1941), p. 24.

Of the crude copper consumed in Nazi Europe, about 80 percent was supplied from imported ore and metal in 1937.[29] Germany receives a fraction of her requirements from Yugoslavia and the Scandi-

[29] Lewis, *op. cit.*, p. 86.

navian countries and has made numerous attempts to overcome her deficiency by using other ores in place of copper. Aluminum and plated steel are used for electrical transmission lines and lighting conductors.

Aluminum is also substituted for copper in electrical switch gear. The fire-boxes of locomotives, which were formerly made of copper, each using about four tons, are now made of galvanized steel, after the American practice. Copper-plated steel is substituted for copper in geysers. Aluminum, pottery, steel and plastic vessels are substituted for copper vessels in breweries, dairies, canning factories and domestic kitchens. Copper is no longer used for roofing, and telephone wires are made out of copper-coated metal instead of pure copper. About 30 percent of the former German copper consumption went in the manufacture of brass for door handles, knobs, rods and fittings of all sorts. These are now being made of aluminum, steel, and plastics. The same materials are being used instead of brass in optical instruments, field-glasses, and microscopes, and in the manufacture of lamp sockets, switches, etc. In all these ways copper, which is so useful as an easily worked anti-corrosive material, is conserved for use in shells and ammunition, for no satisfactory substitute for copper has yet been found for this purpose. The rifling inside the gun gives spin to the shells through the copper rings, and accuracy of fire depends on spin. The German mother, it may be said, foregoes her copper kettle so that her son may shoot straight.[30]

Before the outbreak of the war in 1939, production of copper in the United States from both primary and secondary sources was estimated at about 1,100,000 tons a year. This compares with a combined military and civilian demand of 1,950,000 tons in 1941, of which one-fourth was required for military purposes. Copper supplies available from all sources in 1941 fell short of this amount by 350,000 tons. It was, therefore, necessary to impose strict priority control upon copper, brass and bronze, and fabricated products made from these metals. Proper price policies facilitated the utilization of previously submarginal deposits. Large orders were placed in Latin America, and the total supply of Peru was made available to the United States.

*Lead.*—Lead has many industrial uses because of its high degree of malleability, and is also used for the production of ammunition.

[30] *Science in War* (New York, Penguin Books, 1940), pp. 21–22.

The geographical distribution of lead ore production is indicated in the following table.

TABLE 45.—PRODUCTION OF LEAD ORE, BY COUNTRIES, IN PERCENT OF WORLD PRODUCTION, 1938 *

| | |
|---|---|
| United States | 18.7 |
| Mexico | 15.7 |
| Australia | 15.6 |
| Canada | 10.6 |
| Germany and Austria | 5.4 |
| Burma | 5.0 |
| Yugoslavia | 4.4 |
| U.S.S.R. | 3.9 |
| Peru | 3.2 |
| Italy | 2.2 |
| Other countries | 15.3 |
| Total | 100 |

* Royal Institute of International Affairs, *World Production of Raw Materials*, p. 27.

Around 50 percent of Nazi Europe's requirements for newly mined lead were supplied from imports of ore and crude metal in 1937.[31] In view of the shortage, "lead is conserved by being hardened with small quantities of antimony. Owing to the greater stiffness, thinner pipes hold their shape equally well. It is not certain, however, that they will wear equally well." [32] Japan used to obtain supplies from Burma, Australia, Canada and the United States. Russian production covered 77 percent of requirements, with substantial reserves available. Before the outbreak of the war in 1939, the United States was nearly self-sufficient with respect to lead. Since then, requirements have been stepped up, and current consumption in the fall of 1941 was at the annual rate of 960,000 tons, with an appreciable increase anticipated. Since supplies of lead ore from all sources, foreign and domestic, fell short of this amount by 360,000 tons, the difference had to be made up by increased use of scrap, imports of foreign pig lead, and by

[31] Lewis, *op. cit.*, p. 90.
[32] *Science in War*, p. 22.

rationing of the supplies. Imports from Mexico and Peru increased, and the latter country made her total supply available to the United States.

*Zinc.*—Zinc is useful in the production of galvanized iron, which is rust-resisting, and as a constituent of brass. It is used for many defense materials, including cartridges, shells, fuses, airplane parts, naval vessels, die castings and cantonment buildings. The distribution of zinc ore production is indicated in the following table.

TABLE 46.—PRODUCTION OF ZINC ORE, BY COUNTRIES, IN PERCENT OF WORLD PRODUCTION, 1938 *

| | |
|---|---|
| United States | 25.1 |
| Australia | 11.9 |
| Germany and Austria | 11.8 |
| Mexico | 9.2 |
| Canada | 9.2 |
| Italy | 4.7 |
| U.S.S.R. | 3.7 |
| Poland | 3.7 |
| New Foundland | 3.6 |
| Other countries | 17.1 |
| Total | 100 |

* Royal Institute of International Affairs, *World Production of Raw Materials*, p. 36.

About 80 percent of Nazi Europe's consumption of new zinc is from domestic mines.[33] Japan used to obtain supplies from Australia, Canada, and the United States. Russia is self-sufficing and has large reserves of zinc. Zinc production in the United States increased from 478,000 tons in 1938 to 724,000 tons in 1940. Available supplies from foreign and domestic sources were estimated at 900,000 tons in 1941. In view of greatly increased requirements for defense, zinc was placed under a specific form of priority control in summer, 1941, under which producers were required to create a pool available for allocations on the part of the priority authorities. Imports from Latin America, especially from Mexico and Peru, were stimulated.

[33] Lewis, *op. cit.*, p. 93.

*Tin.*—Tin is used as coating material and as constituent of numerous alloys. There are substitutes available for a number of these uses, and the use of tin scrap can be expanded if the price is sufficient to cover the costs of recovery. The geographical distribution of tin production is as follows.

TABLE 47.—PRODUCTION OF TIN IN ORE, BY COUNTRIES, IN PERCENT OF WORLD PRODUCTION, 1913–37 *

| | |
|---|---|
| Malaya | 34.4 |
| Bolivia | 20.0 |
| Netherlands East Indies | 18.7 |
| Thailand | 6.4 |
| China | 6.1 |
| Nigeria | 4.6 |
| Australia | 2.5 |
| Great Britain | 1.9 |
| Burma (India) | 1.5 |
| Belgian Congo | 1.2 |
| Other countries | 2.7 |
| Total | 100 |

* Roush, *op. cit.*, p. 174.

Germany and Portugal are the only European producers of tin; their output, however, is a mere fraction of one percent of world production. Recovery has thus been pushed as far as possible in Germany. Japan used to obtain supplies of tin from Malaya and Netherlands Indies; under present conditions, she might be able to obtain some from Thailand and Indo-China. However, her smelting facilities are just sufficient for the small domestic production. There are no smelters in Thailand, and Japanese imports used to be smelted in the Straits Settlements. No tin is produced in Russia, though there are some deposits in that country.

The United States used to consume one-half of world production of tin. Domestic supplies are scarce but could be increased to cover about 10 percent of consumption in times of stress. Tin imports to the United States used to be shipped from Malaya, which supplied more than one-half of total imports before the outbreak of the war in

1939, and from China, Netherlands East Indies, Netherlands and England. Both England and the Netherlands reëxported receipts from Bolivia, Nigeria and Netherlands East Indies, after having smelted them in Europe. Most Bolivian ores were smelted in England, and no smelting plant was in existence in Bolivia herself. "The three leading ore producers, Malaya, Bolivia, and Netherlands East Indies, have supplied 73 percent of the total mine production, while the three leading smelting countries, Malaya, Great Britain, and Netherlands East Indies, have produced 83 percent of the metal."[34] United States capital is in control of about one-half of the Bolivian and of some of the Malayan deposits. The establishment of smelting industries in the United States was, however, prevented by export duties imposed upon tin ores shipped outside the British Empire. Bolivian tin was shipped to England from where it was reëxported to the United States. Smelting operations, which had started in the United States during the World War of 1914–18, were discontinued during the 'twenties.

The desire to economize shipping space and to shorten the routes which tin supplies had to travel to the United States, desires which came to the fore in 1939, stimulated the construction of smelting facilities in Bolivia and the United States. American concerns started with the construction of a smelting plant in Texas City, Texas, designed to handle 50,000 tons of tin concentrates a year, enough for 18,000 tons of fine tin, or about one-fifth of our annual consumption. This smelter will use Bolivian and Netherlands Indies ore, since exclusive use of Bolivian ore is not regarded as practical. In the European smelters the treatment of Bolivian ore used to be facilitated through the admixture of rich Nigerian and Netherlands Indies ores, and the United States smelter, which is going to be managed by a Dutch company, is bound to benefit by these experiences.

While the construction of the smelter was in progress, arrangements were made to secure adequate shipments of ore. Starting in 1941, Bolivia was to supply 18,000 tons a year for a period of five years. Large tonnages of ore and concentrates were ordered from China and Netherlands Indies. If the hostilities in the Far East

[34] Roush, *op. cit.*, p. 181.

should result in the closing of present routes of shipping and impede tin shipments to the United States, it is expected that the supplies will be shipped via Australia or India. Malayan smelters, located in the vicinity of Singapore and Penang, and the Netherlands Indies tin production, which is confined to islands situated off the east coast of Sumatra, are protected by the powerful defenses of Singapore.

The stock pile of tin in the United States was sufficient in the summer of 1941 to supply the industry for more than a year. Various processes of substitution were under study, especially the substitution for tin of silver. Expansion of the use of silver in place of tin would reduce United States tin consumption by three-fourths and is reported to require about the same cost.[35]

*Aluminum.*—Aluminum has numerous uses because of its strength and lightness, and is indispensable in the airplane and automobile industry. World production of aluminum increased by 100 percent during the World War of 1914–18 and has been greatly increased during the present war. It is possible that the expanded capacity to produce aluminum will be a powerful stimulation of the use of aluminum for reconstruction work after the war. Bauxite, the ore which

TABLE 48.—PRODUCTION OF BAUXITE, BY COUNTRIES, IN PERCENT OF TOTAL PRODUCTION, 1913–37 *

| | |
|---|---|
| France | 29.6 |
| United States | 25.6 |
| Hungary | 9.3 |
| Italy | 7.7 |
| Surinam | 7.2 |
| British Guiana | 7.0 |
| Yugoslavia | 5.6 |
| Russia | 2.3 |
| Austria | 2.1 |
| Netherlands East Indies | 1.1 |
| Greece | .8 |
| Other countries | 1.7 |

* Roush, *op. cit.*, p. 212.

35 *Defense*, July 15, 1941.

most commonly is used for the commercial production of aluminum, is distributed among numerous countries.

With the exception of France and Italy, all producers of aluminum use imported bauxite. Aluminum production is facilitated by abundant power resources. Germany has greatly increased the output of aluminum in her own territory and in the conquered countries, and substituted aluminum for various other materials. From 1929 to 1937, production increased four-fold; in 1938 it exceeded that of the United States, which had ranked first until that time. Japan used to obtain deliveries from Canada and Netherlands Indies. Russia produced 87 percent of her domestic requirements, mainly in the Ukraine. After the German conquest of the Dniepropetrovsk Region, production was limited to the plants in the Ural Mountains, which had supplied one-third of annual requirements. Plans were in progress in 1941 to double the output of that region.

Until 1940 the Aluminum Company of America (Alcoa) was the only supplier of virgin aluminum in the United States. Its output in 1939 amounted to 327,000,000 pounds. Defense needs, apart from civilian requirements, will absorb 1,600,000,000 pounds in 1942. Civilian demand was expected to represent only a small percentage of the greatly increased requirements. Shortages of aluminum were reported by aircraft plants as early as November, 1940. One small firm was compelled to reduce hours of operation by 20 percent for the duration of the shortage. Much time elapsed before steps were taken to secure an adequate increase in aluminum supplies for 1941 and 1942. The delay was attributed to the lack of ability on the part of the military and defense agencies to translate the future demand into adequate plans for expansion of productive facilities, to the reluctance of Alcoa to engage upon the necessary program of large-scale expansion, and to resistance to the creation of new enterprises which would threaten the unique position of that company.

It was not until February, 1941, that the defense authorities admitted shortages of aluminum to exist. Priorities were imposed upon the use of the material, and defense requirements absorbed 95 to 100 percent of all metal available, including scrap, in June, 1941.[36] In

[36] *Defense*, June 3, 1941.

July, OPM announced "not only that there will be no new aluminum available for civilian use, but there is and will be an urgent problem involved in supplying enough fabricated aluminum parts at the places they are needed when they are needed for defense production alone." [37] Shortages of aluminum for essential civilian and military requirements had amounted to 4,000,000 pounds a month. At that time, a Senate Committee reported that an aluminum shortage of at least 300,000,000 pounds a year was threatening to curtail aircraft production by 25 percent in 1942.[38]

Late in the summer of 1941, measures were taken to increase supplies to about 1,500,000,000 pounds a year. It was expected that this would be achieved in January, 1943. Defense requirements for 1942 were estimated at 1,600,000,000 pounds. Production in the summer of 1941 was 635,000,000 pounds. The expansion was to proceed through the construction of new plants by Alcoa and the Defense Plant Corporation and through an increase in deliveries from Canada. The government-owned plants were to be leased to and operated by Alcoa and other companies. The government also stimulated the construction of alumina plants, which were designed to diminish the dependency upon bauxite deliveries from British and Dutch Guiana.

Aluminum derived from secondary metal is only in part suitable for aircraft production. However, to secure the most economical utilization, scrap aluminum was placed under priority control. In July, 1941, a nation-wide campaign to collect 20,000,000 pounds of scrap aluminum was sponsored by the Office of Civilian Defense. To the extent to which such aluminum is not suitable for aircraft production, it can be used for automobile parts and other purposes and thus sets free corresponding amounts of virgin metal to be manufactured into duralumin and other alloys required for aircraft production.

*Magnesium.*—Magnesium is a third lighter than aluminum and of great use in aircraft production. At the outbreak of the war in 1939, Germany was reported to produce at an annual rate of 16,500 tons,

[37] *Defense*, July 22, 1941.

[38] Special Senate Committee Investigating the National Defense Program, *Report*, 77th Cong., 1st Sess., S. Rep. No. 480, 1941. The report is also printed in the *Congressional Record* 87: 5645ff. (June 26, 1941).

compared with 4,831 tons in the United States. In January, 1941, indictments were handed up, charging a long-standing conspiracy between Alcoa, the producer of aluminum, of which magnesium is a rival, the German dye trust, four other concerns and nine individuals. The effect of the conspiracy, it was alleged, had been to curtail the supply of magnesium in the United States and England and to set up arbitrary and excessive prices for the metal. Subsequently the Dow Chemical Company, American producer of magnesium, increased its output from 6,250 tons in 1940 to 15,000 tons in 1941. Magnesium can be obtained from many common sources, including sea water. Expansion of production as planned by the Defense Plant Corporation will ultimately provide an annual capacity of over 100,000,000 pounds.

*Antimony*.—Antimony is of strategic importance because it imparts stiffness and hardness to certain lead alloys which are used for ammunition. Other alloys can be substituted for this use of antimony. Besides the metallurgical use of antimony, compounds of this metal, such as sulfides, are of military importance in the production of shrapnel shells and cartridge caps.

China, Bolivia and Mexico supply more than four-fifths of total production of antimony. The geographical distribution of production is indicated in the following table.

TABLE 49.—PRODUCTION OF ANTIMONY, BY COUNTRIES, IN PERCENT OF WORLD PRODUCTION, 1913–37 *

| | |
|---|---|
| China | 63.3 |
| Bolivia | 10.9 |
| Mexico | 8.2 |
| Algeria | 4.1 |
| France | 3.8 |
| Czechoslovakia | 2.0 |
| Australia | 1.6 |
| Italy | 1.3 |
| United States | 1.0 |
| Other countries | 3.6 |
| Total | 100 |

* Roush, *op. cit.*, p. 251.

Before the outbreak of the war in 1939, European countries obtained supplies of antimony from China. Stimulation of European production has led to a considerable expansion of output, however. Imports to the United States, which is the largest consumer of antimony, originate in Mexico, Bolivia, and China. Smelting operations in the United States started in 1935 in Laredo, Texas, and facilitated the utilization of domestic ores and the importation of ores from Mexico and Bolivia, which have almost completely displaced China as a source of supply.

*Mercury.*—Besides a great number of industrial uses, mercury is of military significance as detonator for explosives and anti-fouling paint for ship bottoms. Production of mercury is concentrated in Italy, Spain, and the United States.

TABLE 50.—PRODUCTION OF MERCURY, BY COUNTRIES, IN PERCENT OF WORLD PRODUCTION, 1913–37 *

| | |
|---|---|
| Italy | 37.1 |
| Spain | 32.4 |
| United States | 15.9 |
| Mexico | 3.2 |
| U.S.S.R. | 2.7 |
| China | 1.9 |
| Czechoslovakia | 1.8 |
| Other countries | 5.0 |
| Total | 100 |

* Roush, *op. cit.*, p. 286.

United States production of mercury is sufficient for about one-half of requirements but has been expanded in recent years. Shipments from Spain and Mexico have been used for the accumulation of a stock pile, which, in the summer of 1941, was adequate to supply the industry for more than half a year.

*Platinum.*—Platinum has numerous industrial uses and is of military importance in the production of acids for munitions and explosive materials. Russia and Canada supply each about one-third of world production; the remainder is distributed among Columbia, South

Africa and the United States. The United States imports 95 percent of her requirements, mostly from Russia, Canada, and Colombia. Germany was successful in obtaining platinum from Colombia as late as 1940.

*Mica.*—Mica minerals are used by the electrical equipment and radio-manufacturing industries. 85 percent of the total production of mica used to originate in India before the outbreak of the war in 1939. Domestic production in the United States supplies less than 20 percent of requirements. Most of the imports used to originate in India, Canada, and Madagascar. To some extent these supplies were shipped by way of England or France. Brazilian mica was obtained by Japan as late as 1941 and shipped by airplane to her European Axis partners. The stock pile in the United States was sufficient in the summer of 1941 to supply the industry for more than a year, and new sources of supply in Latin America were under investigation.

*Iodine.*—Iodine is an antiseptic of great value and of special importance in warfare. 90 percent of the world's supply originates in Chile, where iodine is produced as by-product of nitrate. The United States ranks second in production but requirements are so large that 90 percent is imported from Chile. Stock piles of iodine in the United States are large.

*Nitrogen.*—Nitrogen is indispensable for the production of explosives of all types. Natural nitrates are produced only in Chile, but synthetic poduction has come to the fore since the World War of 1914–18. Nitrogen is also recovered as by-product of gas and coke plants. Since a large number of countries have made efforts to become independent of foreign supplies, the aggregate productive capacity of the world is in excess of requirements. Nazi Europe's production of nitrates was in excess of consumption in 1937.[39] United States productive capacity was about 800,000 short tons in 1941, compared with an actual production of 424,000 tons in 1939. The increase was the result of additions made to by-product coke oven plants and the construction of new synthetic nitrogen plants. Once the new capacity has become fully available, the United States is expected to be independent of foreign supplies. For the time being, however, the De-

[39] Lewis, *op. cit.*, p. 121.

fense Plant Corporation contracted for 300,000 tons of Chilean nitrates.

*Summary*.—Major Roush, in his authoritative study of *Strategic Mineral Supplies*, has computed ratios indicating the degree of self-sufficiency in the United States with respect to various strategic minerals. These ratios, some of which are reproduced in the following table, indicate the percent of annual consumption secured by domestic production.

TABLE 51.—STRATEGIC MINERALS, UNITED STATES DOMESTIC PRODUCTION IN PERCENT OF DOMESTIC CONSUMPTON, AT WORLD WAR PEAK AND IN 1913–37 *

| | *World War peak* | *1913–37* |
|---|---|---|
| Tin | .1 | .1 |
| Nickel | 1 | 1 |
| Chromium | 45 | 4 |
| Manganese | 36 | 8 |
| Antimony | 14 | 17 |
| Mica | 37 | 26 |
| Bauxite | 105 | 75 |
| Aluminum | 121 | 75 |
| Tungsten | 70 | 36 |
| Mercury | 118 | 63 |
| Platinum | 15 | 6 |
| Iodine | [a] | 19 [b] |
| Nitrogen | 18 | 51 |

* Roush, *op. cit.*, p. 429.
[a] Not reported.
[b] 1932–37.

The table illustrates the large extent to which production at home can be stimulated in times of stress. As compared with the situation during the World War of 1914–18, conditions have changed in many regards and have become more favorable with respect to some commodities and less with respect to others. Some deposits are more nearly exhausted than they were 25 years ago, since tariffs, which were enacted after the war, stimulated their exploitation. Techno-

logical progress has greatly increased the requirements for other minerals.

Various calculations have been prepared indicating the ranking of countries in wartime with respect to their mineral resources. Most of these calculations have little meaning since they do not reflect all of the factors determining the type and size of supplies available. The following table illustrates the relative ranking of various countries, *i.e.*, their ability to supply their national armies. This, of course, greatly exaggerates the power of small nations. The various minerals were weighed for the purpose of compiling the table. Weights were as follows: coal, 40; petroleum, 20; iron, 15; copper, lead, manganese and sulphur alloys, each 4; zinc, aluminum and nickel, each 2; tin and various steel-alloy metals, each 1; mercury and antimony, each ½. The number 100 indicates complete self-sufficiency.

TABLE 52.—RELATIVE RANKING OF VARIOUS COUNTRIES IN WARTIME WITH RESPECT TO MINERAL SUPPLIES, 1938 *

| | |
|---|---|
| United States | 90 |
| Russia (after execution of program) | 80 |
| Russia (1938) | 50 |
| Germany (1938) | 62 |
| Great Britain | 55 |
| France | 48 |
| Japan | 43 |
| Italy | 19 |

* F. Friedensburg, *Die Bergwirtschaft der Erde* (Stuttgart, Ferdinand Enke, 1938), p. 182.

## Textile Resources and Rubber

*Cotton.*—The geographical distribution of cotton production is illustrated in Table 53, p. 258.

Nazi Europe's consumption of cotton is almost wholly dependent upon imports. Japan used to receive supplies from India and the United States. Consumption of cotton in these countries has declined and has been replaced by synthetic materials.

*Wool.*—Sixty percent of the world's wool production is concen-

TABLE 53.—PRODUCTION OF COTTON, BY COUNTRIES, IN PERCENT OF WORLD PRODUCTION, 1938 *

| | |
|---|---|
| United States | 43 |
| India | 16 |
| Russia | 14 |
| China | 8 |
| Brazil | 6 |
| Egypt | 5 |
| Other countries | 8 |
| Total | 100 |

* United States Department of Agriculture, *Agricultural Statistics, 1939* (Washington, Government Printing Office, 1939), p. 105.

trated in the southern hemisphere. Forty-five percent is produced in Australia, New Zealand and South Africa. Nazi Europe's wool consumption, which is met by a domestic supply amounting to about 10 percent of world production, is supplemented by the use of various *Ersatz* fibers. Japan was dependent upon Australia for nearly 100 percent of her requirements. Next to Australia, the United States is the largest producer of wool. In addition to domestic production, use is made of Latin-American resources and the supplies of the British Empire. Upon the outbreak of the present conflict in 1939, England cornered the Australasian wool market. To prevent the dislocation of United States markets, an agreement was made between Great Britain and the United States in the fall of 1940 which provided for the importation of 250,000,000 gross pounds of wool to the United States for storage in bond. This amount exceeds our average annual import requirements. Ownership of the wool was to remain with Britain, and depletion of the reserve was to take place gradually if normal imports were interrupted.

*Silk.*—Silk is used for powder bags and parachutes. Since the production of silk is concentrated in Japan which supplied over one-half of world production, the outbreak of the war in 1939 and the subsequent hostilities in the Far East have created difficulties for virtually all other countries. Germany received some supplies from Italy, which contributes 10 percent of world production. Russia

has stimulated domestic production on a few farms in South Russia. China produces about 20 percent of world production. Stock piles of raw silk were ample in Britain. Supplies available in the United States in July, 1941, were sufficient for military requirements for a period of one to two years.

Substitutes for the use of silk in parachutes can be more easily developed than substitutes for silk in powder bags. While nylon is satisfactory for parachutes, powder bags used in large naval and coast defense guns require silk, since this material burns completely when a gun is discharged, without leaving hot ash which may ignite the reload and lead to a premature explosion of the next charge. The Navy has developed a synthetic silk substitute, details of which are not known. Cotton bags, which have been substituted for silk bags by the Army, are not suitable for guns of high caliber.

The cessation of silk imports in July, 1941, confronted the hosiery industry in the United States with difficult problems of adjustment. No stock pile for industrial uses of silk had been developed for fear that such action might further aggravate the disturbed relations with Japan. Supplies of raw silk in the United States were sufficient only for keeping the mills operating for a few months. Not only were supplies of raw silk placed under government control, but control was extended to cover rayon yarn, with the view of facilitating allocations to manufacturers who heretofore had used silk. Rayon mills were already at that time producing at capacity, and machinery for the production of strong rayon suitable for full-fashioned hosiery was not available in large amounts. Nylon, another material which was to be substituted for silk, had been in use only during one year, and available facilities were sufficient only for the production of one-fifth of full-fashioned hosiery requirements. Production schedules provided for a gradual increase to one-third in 1942 and one-half in 1943. Vinyon, another substitute, was used mainly for heavy industrial cloths. Cotton yarn was scarce, especially the fine lisle yarn which is knitted into hosiery. It takes longer for spindles to run out these yarns, and the supply of suitable spindles was limited. Most of the long-staple cotton suitable for this type of yarn was produced in Egypt, and it was expected that the cessation of

silk imports from Japan would stimulate imports of cotton lisle yarn from England. In no responsible quarter were proposals made to develop a silk-raising industry in the United States. All attempts which had been undertaken in the past had been doomed to failure because no American worker would be willing to reduce his standard of living in accordance with the rewards which this industry would be able to offer.

*Synthetic fibers.*[40]—During the past thirty years, the production of rayon has steadily increased, particularly in the United States. From 1930 to 1939, world production increased from 204,000 metric tons to 510,900 metric tons; production of Germany, from 26,755 tons to 66,500 tons, Austrian production being included in the latter figure. In 1940, the output in Nazi-controlled Europe amounted to 35 percent of world production, with Japan and the United States following with 22 and 20 percent, respectively.

During the 'thirties, certain new processes have come to the fore in Europe and resulted in a considerable increase in the production of staple fibers. Like rayon, staple fibers are produced from cellulose, but instead of being made in continuous filaments as in case of rayon, the material is cut into short staples in order to be used for spinning on cotton and worsted machinery. From 1930 to 1939, world production of staple fibers increased from 2,840 metric tons to 493,000 metric tons, approaching the volume of total rayon production. In 1940, world output continued to rise to 114 percent of that for 1939. Production in Germany rose from 1,976 tons in 1930 to 200,000 tons in 1939. Germany, together with Japan and Italy, produces 87 percent of the world's output of staple fibers.

Production of staple fibers is facilitated by the availability of domestic timber. Italy has also made attempts to use skimmed milk as basic material of Lanital, a wool substitute.[41] Lanital production in 1938 was only 1,683 metric tons. A similar German product, Tiolan,

[40] Figures for 1939 and previous years: League of Nations, *Monthly Bulletin of Statistics* 21: 311 (1940); figures for 1939 are preliminary. Figures for 1940: Textile Economics Bureau.

[41] In the United States, Aralac, a fiber made from casein, was made available for the textile industry in 1941. It was designed to replace rabbit hair and other imported materials.

is used in the felt industry. Both countries have also made a start with the utilization of straw and marsh grass for fiber production.

*Rubber.*—Production of rubber is concentrated in British Malaya and Netherlands East Indies, which supply 75 percent of the world's output. Another 20 percent originates in Thailand, Indo-China, Ceylon, and Borneo. Germany and France used each to import about 10 percent of world production. About the same proportion can be obtained by Japan from Indo-China and Thailand. The United States imports over 50 percent of the world's rubber production of about 1,000,000 metric tons. Her consumption, including recovered material, is equal to about three-fourths of world consumption. About 70 percent of all crude rubber imported normally goes into automobile tires. In 1941, the rubber requirements of the United States were 33 percent in excess of consumption in 1939, and requirements for 1942 were estimated as 45 percent higher than consumption in 1939. About 25 percent of requirements is for military purposes. Measures designed to secure ample supplies of this important material included the following: accumulation of a stock pile of 400,000 tons; stimulation of recovery, of synthetic production and production in the Western Hemisphere. Domestic measures of control included the imposition of priorities first upon neoprene and subsequently upon all types of synthetic and natural rubber. Though there was then no actual shortage of natural rubber, this material was placed under control in the summer of 1941 in view of shipping uncertainties in the Pacific in order to facilitate the accumulation of reserves. During the second half of 1941, manufacturers of rubber products had to reduce their consumption, and the Rubber Reserve Company, subsidiary of the Reconstruction Finance Corporation, became the sole buyer of crude rubber imported to the United States from British and Dutch sources. By September, 1941, this company had accumulated 140,318 tons of raw rubber; 66,391 tons were in transit, and 150,601 tons awaited shipment. Total supplies on hand in the United States were reported as about 600,000 tons in December, 1941, with 125,000 tons in transit. When the outbreak of hostilities with Japan made future supplies precarious, rubber was placed under strict control and civilian purchases of rubber products were made subject to rationing. It was

expected that severe curtailment of civilian consumption in conjunction with increased production of synthetic rubber would stretch supplies through about 30 months.

The capacity of rubber-reclaiming plants was reported as 25,000 tons per month in 1941. According to estimates of the United States Tariff Commission, at least 225,000 long tons could be produced per year by reclaiming rubber from scrap and by retreading used tires.

Synthetic substitutes for rubber had been produced in Germany, Poland, Italy, Japan, Russia, and the United States for a number of years. Buna, the German product, is composed of natrium, coal and limestone. Though it is three to four times as expensive as rubber, it is reported to be more durable and heat-resisting. Only about one-third of German wartime needs are said to be met by Buna,[42] and civilian consumption had to be severely curtailed. In the United States, synthetic rubber is produced by means of a great variety of processes and sold under the commercial names of Butyl, Duprene, Neoprene, Chemigum, Ameripol, Koroseal and Thiokol. The leading producers include the Standard Oil Development Company, subsidiary of the Standard Oil Company of New Jersey, E. I. Du Pont de Nemours Company, Thiokol Corporation of New Jersey, United States Rubber, Goodyear Tire and Rubber Company, and the Goodrich Company. The license for the production of Buna is in the possession of Standard Oil. Koroseal, which is produced by the Hydrocarbon Chemical and Rubber Company of Akron, is composed of coal, limestone and salt. Duprene is made of chlorprene, a product of acetylene and hydrochloric acid. Ameripol, produced by Goodrich, is made from petroleum, soap, natural gas, and air. Standard Oil is engaged in attempts to produce rubber from by-products of oil-refining. Thiokol is a combination of natural gas, chlorine and sulphur. Though virtually all of these products are more expensive than rubber, some of them have qualities more suitable for specific uses than the natural product, including greater resistance to heat, wear and corrosion. "The possibilities of producing these rubbers are unlimited. An acre of plant for producing Thiokol could produce 200 tons of rubber substitute in two hours. This is equal to

[42] *Economist*, May 24, 1941, pp. 679–80.

the quantity of natural rubber produced by 1,000 acres of rubber trees in twenty years." [43] Under these circumstances it was surprising that no efforts were undertaken in the United States in the direction of a large-scale expansion of synthetic rubber production. Productive capacity at the end of 1941 was not far in excess of 20,000 tons a year. New plants were designed to add about 100,000 more tons. Synthetic production was to be carried on by firms prominent in the manufacture of natural-rubber products.

In times of emergency, the United States can stimulate the production of rubber in Latin America, especially in Peru and Brazil. Wild rubber, which is available in limited amounts in these countries and in Venezuela and Colombia, requires excessive costs for the collection. Rubber plantations were reported to be promoted in a number of these countries. It is well to remember, however, that it will take many years before rubber will be available from these projects.

Proposals to stimulate the production of natural rubber in the United States from the guayule plant have been studied by the United States Tariff Commission. The Commission has pointed out this product cannot be produced as cheaply as crude rubber can be produced in the Far East and that a large capital investment and considerable time would be required to produce natural rubber in the United States. The Commission added, however, that these difficulties should not be allowed to stand in the way of the production of rubber in the United States should it be deemed necessary as a defense measure.[44] In December, 1941, plans were approved by the Department of Agriculture to plant 45,000 acres of guayule bushes in California and the Southwest. Upon the basis of an anticipated yield of about 1,650 pounds per acre, this project was expected to yield 37,000 tons of rubber after four years, or about 6 percent of one year's normal requirements.

Production of crude rubber in the Far East is under the control of the International Rubber Regulation Committee. Production quotas, which were 90 percent of basic tonnage in 1940, were stepped

[43] *Science in War*, p. 21.
[44] Release of September 22, 1941.

up to 100 percent for the first three quarters of 1941 and 120 percent for the last quarter.

## Resources of the Continent of Europe

The following table indicates the extent to which the continent of Europe is dependent upon foreign supplies.

TABLE 54.—IMPORTS TO THE CONTINENT OF EUROPE OF SELECTED COMMODITIES, IN PERCENT OF TOTAL CONSUMPTION, 1938 *

| | |
|---|---|
| Lead ore | 17 |
| Chrome ore | 18 |
| Raw silk | 37 |
| Crude petroleum | 55 |
| Zinc ore | 59 |
| Cotton | 65 |
| Wool | 69 |
| Tungsten ore | 76 |
| Copper ore | 81 |
| Manganese ore | 84 |
| Crude rubber | 100 |

* Percy W. Bidwell and Arthur R. Upgren, "A Trade Policy for National Defense," *Foreign Affairs*, January, 1941, special reprint, p. 5.

Of the total external trade of the countries of the European continent, about 60 percent was intra-European in 1937. Centralized political control is believed by some observers to be capable of raising this percentage to about 66 percent of the total external trade, thereby cutting nearly in half the value of products to be exchanged from countries outside of the continent. A continental bloc produces sufficient coal, iron, steel, magnesite, bauxite. Its deficiency is most serious in foodstuffs and feeding materials.

It must not be forgotten, however, that adjustments of the European economy in the direction of greater self-sufficiency require considerable periods of time and are being obstructed by shortages of material, transportation difficulties, and the resistance of the workers under the Nazi yoke. The methods of production prevailing in

Nazi Europe are not germane to the general pattern under which modern industrial civilization has developed, and such new incentives as the Nazis have been successful in stimulating are limited in their operations to Germany proper.

# CHAPTER IX

# FOODSTUFFS IN THE MILITARY ECONOMY

Total war is carried on by the whole population who must be adequately fed to maintain their morale and efficiency. It is for this reason that the problem of nutrition assumes paramount importance in total war. Total war is also unrestricted in the sense that the belligerents will do anything in their power to prevent the enemy from obtaining food supplies from abroad. These aspects of the problem, including blockade and economic warfare, are discussed in Chapter X, below.

## Food Requirements in Wartime

Since the World War of 1914–18, the science of nutrition has made great progress. It is now well recognized that not only energy-yielding foods such as carbohydrates and fats are necessary for proper nutrition but also so-called protective foods which are rich in vitamins and salts. For growth and the replacement of wear and tear the body relies largely on the former, while the latter, when they are lacking, cause specific deficiency diseases. It was only in recent years that the significance of protective foods has come to be fully appreciated. Deficiency in vitamins is as important as deficiency in calories, particularly in wartime. "Slight deficiency of vitamins causes lassitude, depression, decreased powers of endurance and increased liability to infections, inability to see properly in a dim light (so obvious and so important in the black-out), and other vaguer symptoms that are difficult to detect." [1]

Better knowledge of nutrition requirements has been instrumental in stimulating various investigations into actually prevailing nutrition standards. Quite universally these investigations have revealed a striking degree of malnutrition. Upon the basis of the vitamin require-

[1] *Science in War* (New York, Penguin Books, 1940), p. 67.

ments laid down a few years ago by the League of Nations, Sir John Orr, the British food expert, calculated the proportion of the British population living on a diet insufficient for health at one-half of the whole population.[2] In the United States, a study of the diets of families of employed wage earners and clerical workers in cities disclosed that "from 40 to 60 percent of the diets of white families, in the four regions from which most extensive data were obtained, were found to be in need of improvement. Over 60 percent of the diets of Negro families in the South were in this class." [3] These figures refer to employed wage earners and clerical workers in cities. Other studies reveal that, of the whole population of the United States, the diets of 37 percent of all families are to be rated as poor because they fail in one or more respects to meet minimum standards of nutrition. Non-farm, non-relief families in the $500–$1,000 income group, which included one-fifth of all non-farm, non-relief families, spent on the average $1.75 per person per week for food in 1935–36. Persons in families at this income level consumed the following quantities of protective foods per week: four pints of milk, or its equivalent; three eggs; one and one-half pounds of meat, poultry or fish; one pound of tomatoes or citrus fruit; and one pound of leafy, green or yellow vegetables.[4] As has been pointed out above, p. 55, "our present undernourished fraction of the population is neither able to serve in the army nor to stand the pace in modern industries." Sir John Orr's studies indicate that the food requirements of men entering the fighting forces are increased by nearly 30 percent and that the same is true with respect to unemployed men taken into industry. "Unemployed men or those engaged in sedentary occupations can get along with about 2,500 calories per day or less, whereas men in the fighting forces need about 4,000 and men in heavy industries need between 3,000 and 4,000." [5] At the end of the World War of 1914–18,

[2] *Food, Health and Income*, second ed. (New York, The Macmillan Company, 1937), p. 8.

[3] Hazel K. Stiebeling and Esther F. Phipard, *Diets of Families of Employed Wage Earners and Clerical Workers in Cities* (U.S. Department of Agriculture, Circular No. 507, Washington, Government Printing Office, 1939), pp. 99–100.

[4] Letter from D. E. Montgomery, Consumers' Counsel, AAA, Department of Agriculture, to the New York *Times*, December 20, 1940.

[5] *Nutrition in War* (Tract Series No. 251, London, Fabian Society, 1940), p. 8.

the food supply (in calories) per head of the British population was slightly larger than at the beginning of the war, and the average American soldier weighed about twelve pounds more than when he enlisted.[6]

There are numerous indications in this country and in England that the war and defense effort has greatly strengthened the consciousness among responsible persons of the dangers inherent in malnutrition and nutritional defects. In both countries, bread is now "fortified," or "enriched," being produced from "superflour" containing the essential elements of vitamin B. Further improvements are bound to follow, particularly in the United States where food is available in abundance. Lack of purchasing power must not be allowed to be an obstacle to a better diet of the people, the more so since resources set free by reduction of food purchases are of no use for the war effort.[7] Extension of the Food Stamp Plan and similar policies will thus be very helpful. Even in England, with her poor domestic food supply, it has been asserted that "it is possible by increasing the production of the right kind of food within our own shores to produce sufficient of the protective foods to meet the health requirements of the whole population. There has never been any difficulty in producing them. The difficulty is to get even distribution." [8]

There is no unanimity concerning the possibilities of using synthetic vitamins normally consumed in fresh food. Industrial production of vitamin and mineral concentrates exists, but pills are a poor substitute when real food is lacking. Reports that the diet of German army recruits is supplemented by these products should be considered in the light of experiences gained during the World War of 1914–18. As the historian of German food policies during the World War has pointed out, "calorific calculation" must operate within limits set by psychological considerations. "Man needs a differentiated diet. He

[6] Sir John Orr and David Lubbock, *Feeding the People in War-Time* (New York, The Macmillan Company, 1940), p. 17; F. A. Hessel, M. S. Hessel, and Welford Martin, *Chemistry in Warfare* (New York, Hastings House, 1940), p. 12.

[7] See above, pp. 104–107. Cf. recommendations of the First National Nutrition Conference, May 26–28, 1941, *Defense*, June 3, 1941.

[8] Orr and Lubbock, *op. cit.*, pp. 34–35. By permission of The Macmillan Company, publishers.

is not served by receiving only the calories needed for the maintenance of life. He cannot live from the 'heat value of the utilized part of food' like the machine lives from coal. . . . The practical solution of the food problem is not concerned with the supply of the necessary calories but with the supply for the hungry population of bread, meat, potatoes, fat, milk, eggs and vegetables as they are needed for the daily diet." [9] Improved knowledge of nutrition must not make us forget psychological fundamentals which require an interesting and diversified diet, not pills.

## Food Situation in Europe at the Outbreak of the War

Agricultural policies in many European countries have for long stimulated domestic production by means of tariffs and other devices which increased prices and prevented the extinction of the domestic producers. During the 'thirties the strife for autarchy has given new impetus to this old tendency, which in the past was mainly inspired by considerations of domestic policy. During these years the maximization of the national dividend ceased to be the goal of public policy and was replaced by the strife for a larger domestic output of food. The resulting pauperization is illustrated in Table 55, p. 270, which compares the consumption of various foodstuffs in European countries with that in the United States. The difference between the United States and England was only slight; France was in the middle; Germany's consumption was far below that of the United States; and Italy was at the bottom.

Agricultural policies of this type are wartime policies applied in peacetime. They are apt to illustrate the character of total war, whose forebodings permeate the structure of the peacetime economy (above, p. 41). In total war, the contraband list is all-inclusive, and the commercial rights of neutrals are allowed to be exercised only to the extent to which neither of the belligerents is in control of the sea. Hence the policy of expanding peacetime production of agriculture in order to be prepared for war.

Protectionism pushed the prices of virtually all agricultural staples

[9] A. Skalweit, *Die deutsche Kriegsernährungswirtschaft* (Stuttgart, Deutsche Verlagsanstalt, 1927), p. 10.

TABLE 55.—CONSUMPTION OF VARIOUS FOODSTUFFS PER HEAD OF THE POPULATION IN SELECTED COUNTRIES, 1934 *

| | *Milk and cream, gallons* | *Butter, lb.* | *Total meat, lb.* | *Eggs, no.* | *Imported citrus fruit, no.* | *Bananas, no.* | *Sugar, kilos* [b] |
|---|---|---|---|---|---|---|---|
| United States | 37 | 17.4 | 140 | 184 | . . . | . . . | 43.6 |
| Great Britain | 22 [a] | 25.2 | 139 | 172 | 28.8 | 15.0 | 43.7 |
| France | 23 | 14.0 | 75 | 143 | 18.5 | 9.0 | 23.5 |
| Germany | 23 | 16.3 | 119 | 117 | 11.2 | 3.1 | 22.5 |
| Italy | 8 | 2.3 | 34 | 120 | . . . | .7 | 6.8 |

* League of Nations, *The Problem of Nutrition*, Vol. IV (12 (*c*). 1936, II. B.), pp. 43ff.

[a] Average 1930–34.

[b] 1936. *Statistisches Jahrbuch für das Deutsche Reich, 1938* (Berlin, 1938), pp. 382ff., 308*ff.

in Europe far above the prices in the United States. In 1929 the highest wheat price in Europe was 59 percent in excess of the price in the United States. In 1932 and 1936 the difference rose to 209 percent and 114 percent, respectively. In 1938 the maximum difference was 179 percent. It was in view of these conditions that Lionel Robbins stated: "To speak of a world price for wheat has now become an absurdity." [10] When other agricultural products are taken into account, the price differences are even greater. While English prices are only slightly higher than those in the United States, German prices for farm products are, on the average, 200 percent above the American. Italian prices, which were higher during the preceding years, have receded (relative to dollars) on account of the devaluation of the lira.[11]

*Germany*.—At the end of the World War of 1914–18, Germany was regarded self-sustaining in grains. The policy of protecting and artificially stimulating domestic production, which was intensified under the Nazi regime, resulted in a substantial reduction of imports

[10] *The Great Depression* (New York, The Macmillan Company, 1936), p. 67.

[11] For statistics, see H. W. Spiegel, *Land Tenure Policies at Home and Abroad* (Chapel Hill, University of North Carolina Press, 1941), p. 92.

only in 1936, since harvests were disappointing in all other years.[12] In order to make wheat supplies reach further, consumption of rye and maize was stimulated. With the exception of maize, production of grains was lower than the 1929–34 average in every year except 1938. Yield per hectare declined likewise.

The number of livestock did not show any significant increase up to 1938 with the exception of sheep. Lack of domestic fodder, restrictions upon the importation of foreign fodder, prevalence of hoof-and-mouth disease, and scarcity of labor were responsible for this failure. Imports of all livestock increased, some to a considerable extent. Self-sufficiency in grains with its concomitant diversion of grains from feed to food proved incompatible with self-sufficiency in livestock. Only by securing an ample supply of fodder could Germany attain self-sufficiency in livestock production.

The generally observed tendency to slaughter livestock when feeding material is scarce did not apply to poultry. The stock of poultry increased and imports were cut to one-third of the 1933 level. The cut in imports, however, was larger than the increase in production, and the shortage of eggs in Germany started earlier and was more pronounced than the shortage of any other foodstuff, with the exception of butter. Milk cows, to some extent, compete for fodder with livestock, and there was, thus, no increase in the stock of milk cows and in dairy production.

As a competent observer put it, "on the whole agricultural production has not been substantially increased and imports have not been substantially reduced." [13] The official figures indicating the production of various crops, volume of agricultural production, and total food imports are shown in Tables 56, 57 and 58. According to official estimates, Germany produced 83 percent of her food requirements in 1938, compared with 75 percent in 1932.[14] This was only little more than before the outbreak of the World War of 1914–18, when do-

[12] The following discussion draws heavily upon B. H. Higgins, "Germany's Bid for Agricultural Self Sufficiency," *Journal of Farm Economics* 21: 435–61 (1939).

[13] Higgins, *op. cit.*, p. 456. Only potatoes increased considerably. Value of imports increased on account of higher prices.

[14] "Die Selbstversorgung mit Lebensmitteln in der Welt," Institut für Konjunkturforschung, Berlin, *Wochenbericht* 12: 21–23 (February 2, 1939).

mestic food production varied between 75 and 80 percent of consumption.[15] During the World War of 1914–18, food output declined as a result of shortages of labor and fertilizer.

TABLE 56.—ANNUAL YIELDS OF VARIOUS CROPS, GERMANY, IN THOUSAND CWTS., 1928–38 *

| | *Rye* | *Wheat* | *Barley* | *Oats* | *Potatoes* |
|---|---|---|---|---|---|
| 1928 | 8,522 | 3,854 | 3,347 | 6,996 | 41,269 |
| 1929 | 8,155 | 3,349 | 3,181 | 6,739 | 37,669 |
| 1930 | 7,679 | 3,789 | 2,860 | 5,186 | 44,214 |
| 1931 | 6,680 | 4,233 | 3,018 | 5,709 | 41,201 |
| 1932 | 8,364 | 5,003 | 3,215 | 6,075 | 44,220 |
| 1933 | 8,727 | 5,604 | 3,468 | 6,334 | 41,472 |
| 1934 | 7,608 | 4,533 | 3,204 | 4,826 | 44,252 |
| 1935 | 7,478 | 4,667 | 3,388 | 5,386 | 41,016 |
| 1936 | 7,386 | 4,427 | 3,399 | 5,618 | 46,324 |
| 1937 | 6,916 | 4,466 | 3,637 | 5,918 | 55,309 |
| 1938 [a] | 8,610 | 5,580 | 4,250 | 6,360 | 50,894 |

* *Statistisches Jahrbuch für das Deutsche Reich, 1938* (Berlin, 1938), p. 99; *Wirtschaft und Statistik*, 1939, pp. 127–28.

[a] Old territory.

*England.*—At the time of the outbreak of the war, British home-grown food supplied only roughly one-third of domestic consumption. In the past, there had never been a really effective protective tariff in England, except from 1815 to 1853. Since 1931 British agriculture was protected to an extent never before attained, enjoying an additional government subsidization amounting to £32,000,000 in 1938–39. However, the burden of British agricultural policy upon the nation was not nearly as heavy as in Germany, for example, where the regressive effect of high food prices was experienced to a much higher degree. In England, a considerably larger proportion of the social cost of the agricultural policy was contributed by the government through subsidies. These, in turn, were shifted to the taxpayers by means of highly progressive taxes, while in Germany little attention

[15] From 1903 to 1913. Leo Grebler and Wilhelm Winkler, *The Cost of the World War to Germany and Austria-Hungary* (New Haven, Yale University Press, 1940), p. 9.

TABLE 57.—VOLUME OF AGRICULTURAL PRODUCTION, GERMANY; 1929–30 TO 1937–38 (AVERAGE 1927–29 = 100) *

| | |
|---|---|
| 1929–30 | 105 |
| 1930–31 | 105 |
| 1931–32 | 108 |
| 1932–33 | 104 |
| 1933–34 | 110 |
| 1934–35 | 115 |
| 1935–36 | 110 |
| 1936–37 | 113 |
| 1937–38 | 117 |

* Institut für Konjunkturforschung, Berlin, *Wochenbericht*, 1939, No. 5, p. 21.

TABLE 58.—VALUE OF FOOD IMPORTS, GERMANY, 1929, 1932–38 (IN MILLION MARKS) *

| | |
|---|---|
| 1929 | 5,380 |
| 1932 | 2,132 |
| 1933 | 1,629 |
| 1934 | 1,543 |
| 1935 | 1,435 |
| 1936 | 1,499 |
| 1937 | 2,045 |
| 1938[a] | 2,393 |

* *Statistisches Jahrbuch für das Deutsche Reich, 1938* (Berlin, 1938), p. 256.
[a] Greater Germany.

was paid to the principle of ability to pay, and the high prices of food were paid by the poor and rich alike.

The effect of protection and subsidization upon British agricultural production has been astonishing. The agricultural returns for England and Wales for the year 1938 showed that the acreages under wheat and barley were the largest since 1922 for wheat and 1932 for barley; in each case, the yields per acre were the highest recorded since returns were first collected in 1885. Total production of wheat and barley was the largest since 1921 and 1929 respectively. "The [agricultural] output per head (at the prices of 1930) rose by some 40 percent between 1924 and 1935 (the greater part occurring in the last five years) and has further increased subsequently." A comparison with the increase in productivity per head in other lines of industrial activity shows that "the sometimes despised agriculture has done best of all." [16]

## Food Supplies in Wartime

There are no important foodstuffs with respect to which a serious scarcity could befall the United States. Commodities like sugar and

[16] J. M. Keynes, London *Times*, September 13, 1938.

coffee can easily be secured from Hawaii, Puerto Rico, Cuba, Brazil, Central America and the islands of the Caribbean Sea. Russia and Japan are in a similarly secure position with respect to foodstuffs, though the Japanese position is somewhat precarious in view of bad harvests which have occurred in recent years. Food supplies of the European belligerents are insufficient. The deficiency of domestic food is no menace to England, however, as long as she is able to draw upon the resources of the Empire and of the Americas. In the following table, a calculation of the German Institute of Business Research is reproduced, indicating the degree of self-sufficiency in foodstuffs for various countries. The figures indicate the percent of food calories consumed which was home-produced, after deduction of a proportionate share for imported feeding stuff. The number 100 indicates self-sufficiency; numbers below and above 100 are indicative of deficiency and surpluses, respectively. Since the estimates are on a calory-basis, no account is taken of the availability of "protective" foods and of a varied diet. It is of course true that many of the figures are misleading under present conditions, since their calculation was based upon the assumption that normal imports of feeding material would be forthcoming. The authors of the calculations stated that the surprisingly low figure for the United States resulted from the poor harvest in 1937. This year had been the basis of most of the calculations.

*Nazi Europe.*—Subsequent to the outbreak of the war in 1939, German writers admitted that no further expansion of domestic production of foodstuffs was feasible, and that "the total result of these efforts will not go beyond the maintenance of that level of production which has been attained during the last few years." [17] Germany's food shortage could in part, and in the short run, be relieved by the large-scale plundering of the conquered countries. Taken as a whole, Nazi Europe is even less self-sufficing with respect to the most important foodstuffs than Germany. In 1937,

> imports have accounted for 9 to 10 percent of the cereals consumed in Nazi Europe; for about half of the vegetable oils—and for the

[17] K. C. Thalheim, "Die Grundlagen der deutschen Kriegsfinanzierung," *Weltwirtschaftliches Archiv* 51: 454 (1940).

TABLE 59.—SELF-SUFFICIENCY IN FOODSTUFFS IN VARIOUS COUNTRIES, IN PERCENT OF COMPLETE SELF-SUFFICIENCY, ABOUT 1937 *

| | |
|---|---|
| Continental Europe: | |
| Germany (old territory) | 83 |
| Norway | 43 |
| Switzerland | 47 |
| Belgium | 51 |
| Netherlands | 67 |
| Austria | 75 |
| Finland | 78 |
| Greece | 80 |
| France | 83 |
| Sweden | 91 |
| Portugal | 94 |
| Italy | 95 |
| Spain | 99 |
| Czechoslovakia | 100 |
| Estonia | 102 |
| Denmark | 103 |
| Poland | 105 |
| Yugoslavia | 106 |
| Latvia | 106 |
| Bulgaria | 109 |
| Lithuania | 110 |
| Rumania | 110 |
| Hungary | 121 |
| Japan | 95 |
| British Empire: | |
| Great Britain | 25 |
| Eire | 75 |
| British India | 100 |
| New Zealand | 173 |
| Canada | 192 |
| Australia | 214 |
| U.S.S.R. | 101 |
| China | 100 |
| America: | |
| United States | 91 |
| Chile | 93 |
| Brazil | 96 |
| Argentina | 264 |

* "Die Selbstversorgung mit Lebensmitteln in der Welt," Institut für Konjunkturforschung, Berlin, *Wochenbericht* 12: 21–23 (February 2, 1939).

greater part of the oil-cakes used in the dairy industry; for all the coffee, tea, and cacao, and for roughly one-third of the tobacco consumption. In sugar, fruit, and wine, production has almost equalled consumption. In meat, dairy products, eggs, and potatoes, the area has been on an export basis.

Western Hemisphere countries supplied more than 60 percent of Europe's grain, roughly 15 percent of the vegetable oils, the greater part of the coffee, and about half of the tobacco imported into Nazi Europe. The rest of the vegetable oil and tobacco imports were accounted for by the Far East and tropical Africa. Cacao came prin-

cipally from tropical Africa, wine from Algeria, and tea from the Far East.[18]

The most serious shortage was thus in feeding-materials. Countries like Denmark and Netherlands, which had been prominent in the production and exportation of livestock, dairy products, and poultry, had to adjust their agricultural production to conditions where animal feeds and oil seeds were no longer available from abroad. It was possible to a small extent to substitute cellulose fodder for natural products. Annual production of this fodder, called "wood oats" in Sweden, was estimated at 300,000 tons. This compares with average annual imports to continental Europe, without Russia, of 1,700,000 tons of vegetable oil and 4,700,000 tons of oil cake from 1936 to 1938. Most of the cellulose fodder was produced in Scandinavia and Finland. In Germany, sawdust is used for sugarization by means of hydroelectric processes operating in combination with saw mills. The sugar is finally converted into a protein fodder, often under admixture of protein substances such as fish meal or soyabean meal.[19]

A more drastic type of "adjustment" was the wholesale slaughter of farm animals in the conquered countries. This was designed to relieve the food shortage in Germany, and at the same time reduced the number of farm animals to the amount of feeding material available. For the countries concerned, it meant the liquidation of productive assets. In Denmark, for example, pigs and poultry were sacrificed first. Their replacement was considered easier than that of cattle, and they absorbed grains otherwise available for human consumption. The number of pigs and poultry thus declined from 3,127,000 and 32,398,000 in June, 1939, to 1,825,000 and 8,055,000 in March, 1941. The number of head of cattle declined less rapidly (from 3,271,000 to 2,976,000), since the production of milk and butter was considered of especial importance in view of the prevailing shortage of fat and since their replacement was bound to be much more time-absorbing than that of pigs and poultry.[20]

[18] Cleona Lewis, *Nazi Europe and World Trade* (Washington, Brookings Institution, 1941), p. 57.

[19] *Economist*, July 5, 1941, p. 15.

[20] Bank for International Settlements, *Eleventh Annual Report* (Basle, 1941), p. 22.

Still another type of adjustment was the expansion of the cultivation of cereals, root crops and oilseeds, and the adaptation of the livestock and dairy industry to home-grown feeding material.[21] Danish farmers were thus ordered to make their system of farming more extensive. The replacement of the previously existing highly intensive system was bound to affect adversely the Danish standard of living. Moreover, the exactions to which the Danish and other farmers are exposed are of the nature of capital consumption and can be continued only as long as capital, *i.e.*, farm animals, are left.

Rumania, Hungary, and other Danubian countries are the most important agricultural-surplus regions of Europe. While it is possible to divert their export surplus to Nazi Europe, the vicissitudes of the war with its concomitant adverse influence upon production have reduced the exportable surplus of the Danubian basin. Moreover, rationalization of agriculture in these countries and such shifts in production as would alleviate particularly severe shortages cannot meet much success in view of the backwardness of the peasants, their lack of interest in mechanized production, and the uneconomic tenure arrangements and systems of land distribution which prevail in these countries.

In 1941, the privations of the conquered countries assumed tragic proportions. American relief workers reported that French babies were being born undersized, weighing two or three pounds, and that food restrictions had visible effects upon growing children.[22] Under these circumstances it was an act of heroic greatness when, in December, 1940, a group of seventy-eight denizens of unoccupied France sent a message to the United States, disclaiming any interest in food shipments from the United States, shipments, whose net effects could only be beneficial to the Nazis. In this message it was said:

> Dear friends, it isn't necessary to think of giving us food supplies; help only our allies and our free brothers; as for us, we shall endure our privations courageously to the victory. Long live America! Long live England! Long live Free France! [23]

[21] *Economist*, May 24, 1941, p. 685.
[22] New York *Times*, July 18, 1941.
[23] From *They Speak for a Nation*, by Eve Curie, Philippe Barres and Raoul de Roussy de Sales, copyright, 1941, by Doubleday, Doran & Company, Inc.

Food rations in Germany do not compare unfavorably with the British (see above, p. 199). However, many more products are under rationing control in Germany than in England, and the German rations are true maxima in the strict sense of the word. Ration cards are required for patrons of restaurants and hotels in Germany but not in England. The decline in German nutrition standards, which occurred in 1939, is indicated in the following table.

TABLE 60.—ANNUAL WAR RATIONS OF ORDINARY CONSUMERS IN PERCENT OF THE 1937 CONSUMPTION OF THE LOWEST-INCOME CONSUMER, GERMANY *

| | |
|---|---|
| Meat | 83.1 |
| Flour | 91.5 |
| Fat | 67.3 |
| Cheese | 91.7 |
| Sugar | 107.1 |
| Coffee and substitutes | 136.9 |
| Eggs | 66.6 |

* Reinhold Schräder, "Freigesetzte Kaufkraft und Kriegssteuerpolitik," *Wirtschaftsdienst*, January 19, 1940, p. 41.

Standards of the members of the military forces and other preferred groups, including workers in heavy industries, are higher. No exact information is available pertaining to the extent to which food standards have continued to decline after the time when Table 60 was compiled. In conjunction with this table, it is interesting to note the opinion of a Nazi writer who held in 1940 that a reduction of civilian consumption to about 70 percent of the prewar standard of living was "the maximum psychologically tenable in the long run." [24]

*England.*—In spite of the efforts mentioned above (p. 273), British home-grown food meets only a relatively small fraction of consumption requirements. "Of the total supply, roughly one-third, by value, is at present produced in this country; one-third is imported from the Empire; and one-third from foreign countries; a fair proportion of the home output is dependent on imported feeding stuff, and it is probable that the home-product share is only about 28 per-

[24] K. C. Thalheim, *op. cit.*, p. 447.

cent after allowance has been made for this." [25] More recent estimates refer to 40 percent as the proportion of home-grown food, and "not much more than 30 percent" when the dependence upon imported feeding stuff is taken into account.[26] In the following table, the relative importance of various types of home-grown foods is shown. Animal feeding stuff is produced in the United Kingdom to an extent satisfying about 78 percent of requirements; the deficiency is greatest in the case of concentrates, such as oil cake, grain, meat meal and molasses.[27]

TABLE 61.—PROPORTION OF THE VOLUME OF HOME-PRODUCED FOOD, IN PERCENT OF TOTAL CONSUMPTION, UNITED KINGDOM, 1937–38 *

| | | | |
|---|---|---|---|
| Butter | 9 | Beef and mutton | 47 |
| Wheat (as flour) | 19 | Milk, condensed | 64 |
| Cheese | 20 | Eggs | 68 |
| Sugar | 22 | Vegetables | 71 |
| Fruit and nuts | 26 | Fish | 81 |
| Miscellaneous | 32 | Potatoes | 98 |
| Bacon and ham | 32 | Milk, fresh | 100 |
| Miscellaneous cereals | 35 | | |

* Sir John Orr and David Lubbock, *Feeding the People in War-Time* (New York, The Macmillan Company, 1940), p. 46. By permission of The Macmillan Company, publishers.

As the table indicates, Britain was self-sufficing only with respect to fresh milk and potatoes. Almost three quarters of other vegetables and almost half of all meat was home-produced. The most serious deficiency was in butter, wheat, cheese and sugar. The principal sources of these supplies were Canada, Australia, New Zealand, South America, Russia, Cuba, Mauritius, West Indies and Denmark. Other commodities were imported from Poland, Australia, Eire, the United States, Netherlands, Poland, Spain, Palestine, South Africa and France. The British food problem is thus primarily one of transportation and maintenance of the lines of communication. Before the war, im-

[25] K. A. H. Murray, "Food Supplies in Peace and War," Lloyds Bank Limited, *Monthly Review* n.s. 9:479–80 (1938).
[26] Orr and Lubbock, *op. cit.*, p. 46.
[27] *Ibid.*, p. 47.

ports of food and feed required about 20,000,000 tons of shipping a year.[28] The transportation problem was aggravated by the fact that the military events on the continent necessitated a shift to more distant sources of food supplies. Other shifts became necessary in order to economize shipping space and concentrate upon imports from those countries which Britain was in the best position to pay, the amount of foreign exchange being limited. The food value of various commodities per unit of shipping space is subject to great variations, and the shortage of shipping space required that such foods be given preference which convey the largest amount of energy with the least shipping space.

TABLE 62.—ENERGY VALUE OF VARIOUS FOODSTUFFS PER CUBIC FOOT OF SHIPPING SPACE, IN THOUSANDS OF CALORIES[a] *

| | |
|---|---|
| Butter | 143 |
| Fats and tallow (in barrel) | 118 |
| Sugar | 83 |
| Cheese | 56 |
| Wheat (bulk) | 56 |
| Dried fruits | 55 |
| Bacon | 39 |
| Frozen beef | 26 |
| Eggs in shell | 12 |

* Orr and Lubbock, *op. cit.*, p. 49. By permission of The Macmillan Company, publishers.

[a] Approximately.

Butter, other fats, sugar, cheese, and dried fruits are thus more economical import goods than bacon, beef, and eggs. In view of these facts, the British Minister of Food, who is in charge of food imports, has concentrated food imports upon a few essential types and deliberately kept others in short supply. It is well to remember, however, that the maintenance of morale and efficiency calls for meeting psychological requirements as well as physiological ones (above, p. 268). It was thus of great help that food shipments to Britain under the lease-lend program included fats, meats, corn, beans, cereals as well as dairy products and eggs. Under the influence of the shipping

[28] *Ibid.*

shortage, British orders in the United States were designed in part to replace deliveries from the more remote parts of the British Empire in the Pacific area. The United States, in turn, was expected to increase her imports from these parts of the world.

Domestic production in Britain could be economized by shifts from secondary to primary foods. Primary foods are directly derived from nature, while secondary foods result from the previous consumption of primary foods. Secondary food is produced in a "capitalistic," roundabout manner, whereby animals act as converters of matter and energy. Consumption of secondary food is an indicator of a country's wealth. It is, however, extremely wasteful to use animals for the transmutation of primary into secondary foods. One unit of secondary human food requires a number of units of primary food (feeding stuff) varying between 5 in case of the milk cow and 20 in case of beef cattle. The corresponding figures for pig and hen are 8 and 15, respectively. A country like England must, therefore, "economize in the use of imported feeding-stuffs and also in the use of home-grown feeding-stuffs like oats which might be used for human consumption." [29] During the World War of 1914–18, calculations were made in England indicating the number of people who could be maintained for a year on 100 acres growing different crops. Though conditions of production may have changed since then in some respects, these calculations are still indicative of the large differences prevailing among the various crops. (Table 63, p. 282.)

However, it had been experienced during the World War of 1914–18 that farmers are not easily persuaded to reduce their herds in accordance with the cut in imported feeding stuff and shift to primary food production. The same observation was made during the present conflict. From the beginning of the war to the fall of 1941, 6,000,000 acres had been taken into new cultivation, but much of it was used for the production of feeding material. While food experts like Sir John Orr urged the extension of the production of potatoes, vegetables, and milk, the policy of the Ministry of Agriculture encouraged the farmers to devote the new arable land to fodder crops. Moreover, they tended "to keep more animals than they can feed

[29] *Ibid.*, p. 55. By permission of The Macmillan Company, publishers.

TABLE 63.—NUMBER OF PERSONS MAINTAINED FOR A YEAR ON 100 ACRES GROWING SPECIFIED CROPS *

| *Crop* | *Edible products* | *Number of persons* |
|---|---|---|
| Potatoes | Vegetable; pork | 418 |
| Wheat | Bread; beef, pork | 208 |
| Oats | Meal; beef, pork | 172 |
| Mangolds | Milk | 117 |
| Average milk-producing pasture | Milk | 41 |
| Finest pastures | Fat beef and mutton | 40 |
| Mangolds | Beef | 28 |
| Swedes and turnips | Beef and mutton | 20 |
| Seeds' hay | " " " | 13 |
| Meadow hay | " " " | 12 |
| Average meat-producing pasture | " " " | 9 |
| Poorest cultivated pastures | Very lean beef and mutton | 1 |

* Sir Thomas H. Middleton, *Food Production in War* (Oxford, Clarendon Press, 1923), p. 83.

adequately from their own resources, in the hope that 'something will turn up'—an exceptionally good grazing season, an extra ton of cake from their merchant or a sudden armistice." This not only kept the supply of primary food for human consumption down but produced highly seasonable variations in the output of meat, in particular, a glut at the end of the grazing season, which can be avoided if cattle is reduced in winter and more hay and ensilage made in summer.[30]

British food prices are kept down by means of government subsidies of about £100,000,000 a year. There are, however, numerous complaints that prices are still too high to permit the poor to purchase their full rations, especially of protective foods.[31]

British food consumption in hotels, restaurants and similar places was not rationed. Though "luxury feeding" was reported to absorb only a small percentage of total supplies, the proportion of the popu-

[30] *Economist*, July 5, 1941, p. 8.

[31] See Orr, *Nutrition in War*, p. 12; A. L. Bowley, "Working-Class Expenditure," *Economic Journal* 50: 523–24 (1940). For food rations see above, p. 199.

lation enjoying it was likely to be still smaller. Though coupons were still not required, the pressure of public opinion induced the food authorities in March, 1941, to limit the freedom of choice left to people frequenting hotels and restaurants by threatening with penalties any person eating two eggs or fish and meat at the same meal in a restaurant.

Considerable economies were achieved by means of communal feeding, a measure of war communism normally highly distasteful. Communal kitchens and canteens can save

> many things which are very scarce in wartime, particularly . . . labor, fuel, and food. If housewives are to be mobilized for industry on a very large scale, if our overburdened railway system is to be relieved of carrying thousands of tons of coal, if our restricted supply of food is to be distributed fairly among the population, and if the maximum nutritive value is to be obtained from it, communal feeding on a wide scale will have to be resorted to, quite apart from the possibility of having to cater for large numbers of refugees and homeless people. This will mean many families—and perhaps all families in towns—abandoning the family meal during the war. It will also mean commandeering a very large number of hotels and restaurants and using their cooking and other equipment full time. . . . On the other hand, the difficulties must not be overlooked. Such a revolution in feeding habits could only be put across in a situation of acute emergency. Tampering with feeding habits is one of the surest ways of arousing public resentment unless the need for it is plain to all.[32]

"Vocational" rationing with special rations for workers in heavy industries is not widely applied in England because of the existence of numerous canteens and municipal feeding places where workers can obtain additional food. In October, 1941, communal-feeding facilities were reported to provide 17,000,000 meals a week.[33]

[32] *Science in War*, pp. 98–99.
[33] New York *Times*, October 3, 1941.

# CHAPTER X

# INTERNATIONAL ECONOMIC RELATIONS IN WARTIME

In the present chapter the wartime development of international economic relations is recorded and the bearing of the present war upon international trade and finance explored. The chapter is subdivided into four principal parts, economic warfare, the financial position of Great Britain, totalitarian barter trade and the "new order," and hemisphere defense. The subjects of ocean shipping and United States foreign trade, balance of payments and control over exports and imports are discussed in conjunction with economic warfare.[1]

## Economic Warfare

Economic warfare is designed to destroy the enemy's economic war potential by physically destroying war-essential assets and by blocking supplies from abroad. Economic warfare thus requires the coordinated blending of military and economic measures. It goes without saying that modern warfare in the air has widened to a tremendous extent the range over which military measures of economic warfare may become effective. At the same time, a wider and ever wider sector of the economy has been placed in the service of total war, resulting in an increase in the objects of economic warfare and an intensification of a country's susceptibility to its effects.

Among the military measures of economic warfare, the destruction and sinking of ships is of paramount importance. Control over the seas and the lines of communication and transportation is effective only if sufficient shipping space is available for the movement of troops

[1] For an admirable treatment of exchange rates, the gold problem, and related questions see Seymour E. Harris, *The Economics of American Defense* (New York, W. W. Norton and Company, 1941), pp. 217ff.

and cargoes. During the period from 1914 to 1939, the tonnage for the world as a whole increased by over 23,000,000 tons gross. Great Britain's fleet, however, measured more than 1,000,000 tons less, though there occurred an increase in the merchant fleets of the Dominions. In the following table the relative position of the eight principal maritime fleets in 1939 is compared with that in 1914.

In 1940, Britain was able to procure 7,200,000 tons of the merchant fleets of Norway, Netherlands, Belgium, Denmark and France, and the British position improved further on account of the severe losses of the Italian and of the remainder of the French merchant fleets. There occurred, however, heavy losses of the British fleet on account of German submarine warfare and the use of magnetic mines on the part of the German navy. British, allied and neutral losses per month, which had reached a high of 881,027 gross tons during the World War of 1914–18, rose to 597,193 gross tons in April, 1941. From the beginning of the present war until the fall of 1941, total British, allied and neutral losses amounted to about 7,500,000 tons. Large as the losses were, they were nearly wholly outweighed by the British acquisition of the merchant fleets of the countries under German control. During the same period, Axis losses amounted to about 4,000,000 tons according to British reports, indicating the elimination of about 50

TABLE 64.—STEAM AND MOTOR TONNAGE OF EIGHT PRINCIPAL MARITIME FLEETS, 1914 AND 1939 *

| | *1914* | *1939* | |
|---|---|---|---|
| | *percent* | *percent* | *gross tons* |
| Great Britain and Ireland | 41.6 | 26.1 | 17,891,000 |
| United States (Sea) | 4.5 | 13.0 | 8,909,000 |
| Japan | 3.8 | 8.2 | 5,629,000 |
| Norway | 4.3 | 7.1 | 4,833,000 |
| Germany | 11.3 | 6.5 | 4,482,000 |
| Italy | 4.2 | 5.0 | 3,424,000 |
| France | 3.1 | 4.3 | 2,933,000 |
| Holland | 3.2 | 4.3 | 2,969,000 |

* Hobart S. Perry, *Impact of the Present War on Ocean Shipping* (Washington, U.S. Department of Agriculture, Bureau of Agricultural Economics, 1940), pp. 5–6.

percent of the shipping facilities of the Axis. Losses of the Axis would have been even higher had not the Axis powers ceased to expose their ships to dangerous ocean travel in view of the British mastery over the seas.

The rate of British ship losses which prevailed during the spring of 1941 was a serious threat to Britain in view of that country's dependence upon foreign supplies and the necessity to support military operations in remote parts of the world. At the rate prevailing in April, 1941, British, allied and neutral shipping losses due to sinking would have added up to an annual total in excess of 7,000,000 tons, a loss far in excess of the annual shipbuilding capacity of Britain and the United States then estimated at 1,200,000 in each of these countries.[2] It must also be considered that there were considerable losses which were not sinkings and thus were not included in these figures. However, the successful execution of the battle of the Atlantic during the subsequent summer months reduced the loss rate which had prevailed in April by more than one-half. At the same time, the shipbuilding program of the United States was further expanded. Construction plans for 1942 and 1943 provided for additional shipping facilities of 18,000,000 deadweight tons, compared with a 1941 completed production of 1,100,000 tons.[3] The American shipping situation improved also by utilization of the Axis ships which had been immobilized in the ports of the Western Hemisphere. 850,000 gross tons of Axis vessels were added to American shipping facilities, half of the tonnage to those of the United States and the other half to the merchant fleets of the Latin American republics.

British mastery over the seas is not only instrumental in blocking supplies to the Axis powers. The large shipping losses of the Axis and the interruption of coastwise European traffic by the British navy was bound to have serious effects upon the internal economy of the continent, and the diversion of seaborne traffic to land transportation added to the strain of the overburdened continental railway system.

*The blockade.*—Upon the outbreak of the present war in 1939,

[2] London *Times*, June 2, 1941.

[3] A rough formula for converting deadweight into gross tons is on the basis of 2 tons gross to 3 tons deadweight.

Britain started to intercept foreign supplies to Germany. This was later extended to cover German exports. These actions are commonly referred to as blockade. This word, in the terminology of international law, refers to the closing to commerce of all kinds of the ports of the enemy. In the legal sense, the questions involved do not pertain to a blockade but to the interception of contraband goods. Belligerents have the right to intercept contraband covered by a neutral flag. Contraband is either absolute or conditional. Absolute contraband covers articles which by their very nature are destined to be used in war. Conditional contraband is of an ambiguous nature in that it may be destined for peaceful purposes or for war. In total war, this distinction has little meaning, and contraband covers such articles as foodstuffs and other goods destined to be used for the maintenance of the civilian population.

The British blockade operates under a system of navicerts, or clearing papers, which must be obtained by neutral vessels in advance of the sailing of the ship. Navicerts are issued in accordance with previously prepared schedules listing the legitimate amounts of the various commodities required by the neutral countries.[4] Under the influence of military events and changes on the international scene, such leaks of the blockade as had existed at the beginning of the war were gradually closed. As long as Germany was surrounded by a number of neutral countries, shipments consigned to these countries often found their way to Germany, or their importation set free resources in the neutral countries which could be exported to Germany. These leaks were closed in the summer of 1940, when Germany invaded her neutral neighbors and Italy entered the war. From then on, all shipments to the Continent were intercepted, with the exception of the small volume of trade going to Switzerland, Spain, Portugal and the neutrals in the Balkans.

The British blockade was not extented to the Pacific Ocean, in part because British warships were needed elsewhere and in part in order not to offend the Soviet Union, Japan, and the United States. This

[4] Apart from navicerts, the British issue ship warrants to ships whose owners have agreed to transport only navicerted goods. Without such warrants, ships are unable to obtain docking, repairs, bunkerage or lighterage in British controlled ports.

facilitated a considerable volume of traffic from the United States, Latin America, and Netherlands East Indies to Germany via Vladivostok and the Trans-Siberian Railway. These supplies were not stopped before the outbreak of Russo-German hostilities in the summer of 1941. The last leak, though not an important one, was closed when British and Soviet troops occupied Iran in August, 1941.

The extension of the blockade to cover German exports was important in that it reduced the amount of foreign exchange available to Germany. To the extent to which the foreign exchange could not be used for facilitating imports to Germany through loopholes of the blockade, it would still have been of help to the German war effort as a means of financing subversive activities abroad or preemptive purchases of goods which then no longer were available for British purchases. Moreover, the proceeds from such exports could be used to pay for imports from European neutrals.[5]

The British blockade was greatly strengthened by the program of economic warfare upon which the United States embarked in 1941. This program included export control, blacklisting, control over foreign assets, import control and preëmptive buying. The British program of economic warfare, which included related measures, was thus supplemented in the most effective manner.

*Export control.*—American export control had the two-fold purpose of preventing the exportation of commodities in short supply and of barring exports to Germany and the other Axis powers. At the outset, the export control administration was placed in the service of the first objective. It was only gradually that it assumed functions of the second type and was placed in the service of economic warfare. Under the provisions of the May Defense Expediting Act of July 2, 1940 (54 Stat. 714), the President was authorized to prohibit or curtail the exportation of commodities of military importance. The Faddis Machine Tool Act of October 10, 1940, extended this power and authorized the President to take over, and dispose of, goods marked for export but forbidden to move. The number of commodities subject to export control gradually increased. By the fall

[5] Paul Einzig, *Economic Warfare 1939–1940* (New York, The Macmillan Company, 1941), p. 16.

of 1941, the control had been extended to cover 95 percent of all exports. When the United States entered the war as a belligerent, the control was further extended to cover all exports. Commodities under control could be exported only when a license was granted. General licenses were granted for exports to Canada, Great Britain and Northern Ireland. The control over the various commodities was handled in a flexible manner and reflected the changes on the international scene. For the export of a number of commodities the shipper was required to supply records of his exports to the country of destination for the years of 1935 to 1940. This was designed to keep shipments to any one country within the limits of normal purchases.

Apart from the export control proper, United States export trade was subject to a number of other regulations, including the neutrality legislation, moral embargoes, and informal controls such as exercised by the United States Maritime Commission, which may impose regulations on ships of American registry. Under the neutrality legislation as amended in 1939, foreign trade with belligerents had to be on a "cash and carry" basis; ships of American registry were not allowed to carry passengers or cargo to the ports of any state named as belligerent by the President; and American merchant vessels must not carry arms or enter zones proclaimed as combat areas by the President. Subsequent events and legislation had modified the significance of the neutrality statute to a considerable extent when the United States entered the war as a belligerent in December, 1941. The ban on the arming of merchant vessels was lifted in October, 1941. Curbs on credit had, in effect, been removed by the lease-lend law. The determination of combat areas was left with the discretion of the President. More than eighty American vessels were transferred from United States to Panamanian registry after the outbreak of the war in 1939. Change of registry enabled United States vessels to make deliveries of goods to belligerents. Their protection by the United States Navy was in no way prohibited by the neutrality legislation.

During the present war, a "moral embargo" was imposed first on December 2, 1939, when the President terminated exports of aircraft, aeronautical, and aircraft manufacturing equipment to countries

which attacked civilian populations from the air. The embargo was subsequently interpreted to cover plans, manufacturing rights and technical information required for the production of high-test aviation gasoline. This embargo was lifted with respect to Soviet Russia in January, 1941. Its main effect was the curtailment of exports to Japan.

The export control measures were reflected in the volume, type, and direction of American export trade. Both volume and value of United States exports in 1940 were larger than in any year since 1929. A concomitant increase in imports was not large enough to check a considerable rise in the export balance. The latter reached $1,400,000,000, the largest figure since 1921. The development of the foreign trade of the United States is indicated in the following table.

TABLE 65.—MERCHANDISE EXPORTS AND IMPORTS, AND EXCESS OF EXPORTS OVER IMPORTS, UNITED STATES, 1914, 1918, 1920, 1929–41 (IN MILLIONS OF DOLLARS) *

| | *Exports* | *Imports* | *Excess of exports over imports* |
|---|---|---|---|
| 1914 | 2,113 | 1,789 | 324 |
| 1918 | 6,149 | 3,031 | 3,118 |
| 1920 | 8,228 | 5,279 | 2,949 |
| 1929 | 5,241 | 4,399 | 842 |
| 1930 | 3,843 | 3,061 | 782 |
| 1931 | 2,424 | 2,091 | 333 |
| 1932 | 1,611 | 1,323 | 288 |
| 1933 | 1,675 | 1,450 | 225 |
| 1934 | 2,133 | 1,655 | 478 |
| 1935 | 2,282 | 2,047 | 235 |
| 1936 | 2,456 | 2,423 | 33 |
| 1937 | 3,349 | 3,084 | 265 |
| 1938 | 3,094 | 1,960 | 1,134 |
| 1939 | 3,177 | 2,318 | 859 |
| 1940 | 4,021 | 2,625 | 1,396 |
| 1941 (Jan.–June) | 2,085 | 1,594 | 491 |

* U.S. Department of Commerce, releases of January 28, and September 8, 1941.

Subsequent to the defeat of France and the invasion of the European neutrals, trade with continental Europe dropped to a few percent of total exports and imports. Trade with the British Empire increased, though imports lagged behind exports. Exports to the United Kingdom advanced at a fast rate. Exports to Latin America increased slightly, to a far smaller extent than imports from these countries. Trade with Japan dropped under the influence of the political tension. The geographical distribution of United States foreign trade is indicated in the following tables.

TABLE 66.—PERCENT DISTRIBUTION OF UNITED STATES EXPORTS, BY AREAS, 1938–41 *

| | *British Empire* | | | *Continental Europe* | *Latin America* | *Japan* | *Other areas* | *Total* |
|---|---|---|---|---|---|---|---|---|
| | *Total* | *U.K.* | *Canada* | | | | | |
| 1938 | 41.8 | 16.8 | 15.1 | 15.9 | 16.0 | 7.8 | 18.6 | 100 |
| 1939 | 40.3 | 15.9 | 15.4 | 24.3 | 17.9 | 7.3 | 10.2 | 100 |
| 1940 | 52.0 | 25.1 | 17.8 | 15.5 | 18.1 | 5.6 | 8.7 | 100 |
| 1941 [a] | 62.4 | 29.9 | 20.1 | 3.7 | 19.2 | 2.5 | 12.2 | 100 |

* United States Department of Commerce, releases of February 6, and September 8, 1941.

[a] January–June.

TABLE 67.—PERCENT DISTRIBUTION OF UNITED STATES GENERAL IMPORTS, BY AREAS, 1938–41 *

| | *British Empire* | | | *Continental Europe* | *Latin America* | *Japan* | *Other areas* | *Total* |
|---|---|---|---|---|---|---|---|---|
| | *Total* | *U.K.* | *Canada* | | | | | |
| 1938 | 32.5 | 6.0 | 13.3 | 22.8 | 23.2 | 6.5 | 15.1 | 100 |
| 1939 | 35.8 | 6.4 | 14.7 | 20.0 | 22.3 | 6.9 | 15.0 | 100 |
| 1940 | 43.0 | 5.9 | 16.2 | 8.6 | 23.6 | 6.0 | 18.7 | 100 |
| 1941 [a] | 42.5 | 4.2 | 15.3 | 4.9 | 31.3 | 4.0 | 17.2 | 100 |

* United States Department of Commerce, releases of February 6, and September 8, 1941.

[a] January–June.

Exports have become more concentrated not alone with regard to their destination but also with respect to the types of commodities exported. Exports of six defense articles (heavy iron and steel, nonferrous metals, aircraft metal working machinery, firearms and certain chemical products) absorbed 43 percent of total exports during the second half of 1940 and 41 percent during the first half of 1941. In striking contrast to the development during the World War of 1914–18, agricultural exports declined sharply in 1940. According to quantity indices, these exports during the final months of 1940 were at the lowest level since 1869. In 1941, shipments under the lend-lease program, which included various foodstuffs, resulted in a recovery of agricultural exports.

During the first half of 1941, imports increased at a faster rate than exports. The decline in imports of manufactured goods from continental Europe had been outweighed by an increase in imports of strategic and other raw materials from other areas. These materials, which accounted for 25 to 30 percent of total imports in 1940–41, originated principally in Asia and to a lesser extent in Canada, Latin America, Africa, and Oceania. Imports from Great Britain, on the whole, have been maintained. The cessation of imports from continental Europe did not expose the American economy to any strain but necessitated the use of substitutes for such items as goat-milk cheeses, French brandy, wines, perfumes and linen, and Dutch cordials and tulip bulbs.

During the World War of 1914–18, nearly three-quarters of the export balance of the United States was financed by foreign borrowing in the United States, and sales of gold and American securities secured the rest. The present situation is different in various respects. Private lending is prohibited under the provisions of the Neutrality Act and the Johnson Act. On the other hand, the gold and dollar resources which were available to the Allies in 1939 were considerable in excess of those available in 1914 and have been estimated as "perhaps twice as large." [6] There was also an increased readiness to deplete gold reserves. Gold imports by the United States in 1940 were actually

[6] "Foreign Resources of the Belligerents," *Federal Reserve Bulletin*, December, 1939, p. 1043.

larger than merchandise exports in spite of the considerable increase of the latter. Such data pertaining to capital movements in 1940 as are available account for about one-half of the excess of net gold and silver imports (deducting earmark) over trade and service items. The net capital inflow must thus have been twice as large as that indicated by statistics at hand.

TABLE 68.—UNITED STATES BALANCE OF PAYMENTS, 1940
(IN MILLIONS OF DOLLARS) [a] *

| *Item* | *Credit* | *Debit* |
|---|---|---|
| Trade and service | 5,072 | 3,753 |
| Capital items (net) | 1,403 | |
| Gold and silver (net) | | 4,154 |
| Other transactions and residuals | 1,432 | |
| | 7,907 | 7,907 |

* Hal B. Lary and Paul D. Dickens, "The Balance of International Payments of the United States in 1940," *Foreign Commerce Weekly* 2: 515 (March 29, 1941).

[a] Preliminary.

*Blacklisting.*—British blockade and United States export control, highly efficient as they became in 1941, could not fully prevent the shipment of supplies from Latin America to the Axis. Supplies might still be shipped to the Axis by blockade-runners or by means of airplane transportation in case of commodities of high value relative to bulk. In the fall of 1941, Germany was still able to obtain small quantities of industrial platinum, mica, mercury and quartz crystals, mostly from Brazil.[7] It was thus of great help when the United States joined England in severing the commercial ties between her nationals and such firms and individuals in Latin America which maintained Axis connections. Not only did this action make it impossible for these concerns to obtain United States supplies for reëxportation to Germany, but in a less direct manner, it tended to reduce any kind of shipments to Germany since it endangered the commercial position of enterprises with Axis connections.

This policy was executed by means of blacklists containing the

[7] New York *Times*, September 19, 1941.

names of Latin American concerns and individuals with Axis connections. The first "Proclaimed List of Certain Blocked Nationals" was made public by the United States in July, 1941.[8] It contained 1,800 names of corporations and individuals whose assets in the United States were frozen and placed under the same control as were the assets of German and Italians nationals.[9] In December, 1941, the list was extended to cover Japanese firms and individuals in the American republics and non-Japanese individuals who had connections with Japanese enterprises.

*Import control and preëmptive buying.*—Economic warfare was further implemented by measures of import control, particularly preemptive buying. It goes without saying, however, that import control measures may serve purposes apart from economic warfare. If foreign exchange is in short supply, import control, in conjunction with exchange control, is instrumental in allocating foreign exchange among those imports which have first call from the point of view of their essentiality in wartime. Under similar conditions, imports must be restricted to those countries of origin which may be willing to grant credits or to receive exports. These considerations are of importance for countries like England whose supply of foreign exchange is limited. The United States, on the other hand, having at her disposal a vast supply of gold and utilizing her domestic resources at virtually full capacity, is in a quite different position. Not only must she abstain from restrictive controls designed to economize imports, but the specific conditions confronting her require a vigorous policy of stimulating imports. This will foster the war effort, while, at the same time, facilitating the solution of the gold problem by means of a wider distribution of gold stocks.

Apart from the desire to economize foreign exchange and imports, war conditions require, however, a good deal of government control over imports. By securing an import monopoly for itself, the government is in a position to provide for the proper allocation of imported commodities among essential domestic uses. In the United States,

[8] *Defense*, July 22, 1941.

[9] See below, pp. 295f. In January, 1942, the list was extended to cover Axis connections in neutral Europe.

publicly owned corporations thus became exclusive importers of such war-essential goods as rubber and pig lead. In England, control over imports is much more comprehensive for reasons discussed above, and an estimated 80 to 90 percent of total imports are for the account of the government.

As a measure of economic warfare, import control consists of preemptive buying. This policy is designed to purchase goods in neutral countries in order to prevent their acquistion by the enemy. English preëmptive buying took place in the Balkans and other countries of East Europe, but a vigorous policy was often prevented by commercial and financial considerations not germane to the prosecution of the war effort. In the United States, the "Welles Plan" was designed in 1941 to purchase available materials in Latin America with the result of preventing their acquisition by the Axis.

*Control over foreign assets.*—At the outbreak of the war, foreign assets in the United States were in the neighborhood of $20,000,000,000. Table 69, p. 296, contains estimates of the distribution and composition of these assets.

Though the assets of Germany and Italy were relatively small, the conquest of the surrounding countries placed Germany in a position where she could assume control over their considerable assets in the United States. From the point of view of the United States, this was considered disadvantageous in various respects. There was, first, the desire to protect the owners of the assets which had come under German control, and there was the apprehension of impending damage suits of the owners should the United States permit Germany to infringe upon their assets. Gradually, however, these motives were implemented by stronger political considerations. It was obvious that Germany, if she gained control over these assets, could utilize them for financing the shipment of supplies from overseas countries or from European neutrals. To the extent to which the blockade would interfere with this use of the assets, they could be used for financing subversive activities and espionage in the United States and in Latin America. It was thus of foremost importance that the United States take steps designed to prevent any utilization of these assets on the part of Germany.

TABLE 69.—FOREIGN HOLDINGS OF GOLD, DOLLAR BALANCES, INVESTMENTS IN THE UNITED STATES, AND ANNUAL GOLD PRODUCTION OF FOREIGN COUNTRIES, AUGUST, 1939 (APPROXIMATE FIGURES IN MILLIONS OF DOLLARS) *

| Country or area | Foreign holdings | | | | | Annual gold production [a] |
|---|---|---|---|---|---|---|
| | Total | Gold reserves | Dollar balances | Marketable securities | Direct and other investments | |
| United Kingdom | 4,230 | 2,000 | 595 | 735 | 900 | ... |
| Canada | 1,630 | 215 | 355 | 500 | 560 | 165 |
| Other British countries and French colonies | 540 | 540 | [b] | [b] | [b] | 585 |
| U.S.S.R. | 1,000 | 1,000 | [b] | [b] | [b] | 185 |
| Latin America | 1,100 | 660 | 390 | 40 | 10 | 90 |
| Germany | 160 | 150 | 10 | [b] | [b] | ... |
| Italy | 200 | 190 | 10 | [b] | [b] | [b] |
| France | 3,580 | 3,000 | 315 | 185 | 80 | [b] |
| Netherlands | 1,780 | 770 | 160 | 470 | 380 | ... |
| Switzerland | 1,420 | 590 | 285 | 375 | 170 | ... |
| Other European countries | 2,970 | 2,190 | 430 | 130 | 120 | 10 |
| Far East and other | 1,290 | 375 | 355 | 380 | 180 | 115 |

* "Foreign Resources of the Belligerents," *Federal Reserve Bulletin*, December, 1939, p. 1042.

[a] 1938.

[b] Small amounts not published separately.

The President's power of control over foreign assets derived from the Trading with the Enemy Act of October 6, 1917 (40 Stat. 415), as amended by the Wagner Foreign Credits Act of May 7, 1940. The President applied this power by first placing transactions pertaining to Danish and Norwegian assets in the United States under the control of the Treasury in April, 1940, when Denmark and Norway were invaded by Germany. In subsequent months this control was extended to cover the assets of the various European countries as they came under German control. No action had been taken by the United States in 1938 and 1939 with respect to Austrian, Czechoslovakian,

and Polish funds, when these countries were occupied by Germany. Plans to extend the control over the funds of the Axis powers proper were discussed as early as January, 1941, but it was not before June that adequate steps were taken in that direction. Under the influence of this discussion, a considerable increase took place in the hoarding of United States currency, especially of bills of large denominations, and in shipments of currency abroad, particularly to Cuba. On June 14, the President issued an executive order extending control over foreign assets to all countries of the European continent. Financial transactions on behalf of these countries or by their nationals required from then on a license of the Treasury. General licenses were issued to lift the control with respect to Soviet Russia and the neutral countries not invaded by Germany after adequate assurances had been secured from the governments of these countries that the general licenses would not be employed to evade the purposes of the control. Transactions under general licenses were made subject to reporting and were carefully scrutinized.

Simultaneously with the extension of the control the President ordered the preparation of a census of all foreign-owned property in the United States. This census was to cover all countries, not only those whose assets had been placed under control. Only after the completion of this census will the value of the assets under control be exactly known. Estimates of these are in the neighborhood of $6,000,000,000 with $200,000,000 of Italian and German assets. Other estimates, which do not include gold under earmark and other assets, were as follows: assets under control before June 14, 1941: $2,200,000,000; assets placed under control on June 14: $2,000,000,000. There was an additional $130,000,000 of Japanese assets,[10] which, however, were not placed under control before July 25. At the same time, Chinese assets in the United States were made subject to the same control in order to prevent the misuse of these funds on the part of Japan.

The cessation of exports from the United States to Japan was not complete at first. Japan's deficiency in domestic resources of all types was so pronounced that even moderate restrictions were expected

10 Amos E. Taylor, "Frozen Funds and National Defense," *Foreign Commerce Weekly*, Vol. 4, No. 6: 6–7 (August 9, 1941).

to cripple her war economy, while a complete embargo, it was feared, would drive Japan to war against the United States. The cessation of Japanese exports to the United States, while requiring numerous adjustments of the internal economy of the United States, was regarded as far less serious than retaliatory action on the part of Japan designed to interfere with United States connections and shipping with other parts of the Far East and Soviet Russia.

## The Financial Position of Great Britain

*From "cash and carry" to "lease-lend."*—When the war broke out in 1939, the provisions of the Johnson Act and of the Neutrality Act prevented the extension of credit by private persons or concerns to Britain. Purchases of war material had to be made upon a "cash and carry" basis. The payment required gold or dollar exchange. To secure the latter, Britain had to export goods to the United States or sell American securities held by British nationals. In appraising the British position, account must be taken of the difficulty of maintaining a considerable export trade under conditions of war and of the well-known fact that the excess of British imports over exports had grown continuously in recent years. The British position was further aggravated by the defeat of France. The English took over all French procurement contracts in the United States but were in no position to use French assets for the payment of these orders. Early in 1941, the British financial position was described as follows by the United States Secretary of the Treasury:

> The British government owes American manufacturers $1,400,000,000 on orders already placed. This sum will largely have to be met in the calendar year 1941. It has enough gold and dollar exchange assets to meet these outstanding commitments, but the British just haven't got the dollars to take care of their additional needs.[11]

During the first sixteen months of the war, British gold and dollar exchange assets had declined by more than $2,250,000,000. This figure and the figures presented below refer to the assets of what is com-

[11] *Hearings* before the Senate Committee on Foreign Relations, 77th Cong., 1st Sess., on S. 275 (Washington, 1941), Part 1, p. 9.

monly called the "sterling area." The sterling area consists of all British territories, including those held under mandates, except Canada, Newfoundland, and Hong Kong. Added to the sterling area are Egypt, Anglo-Egyptian Sudan, Iraq, and the Belgian Congo. Upon the outbreak of the war, the financial resources of this area were pooled in a manner whereby the various members of the British Empire made available to one another their respective gold and foreign exchange assets. Canada and Newfoundland had been left out because their "dollar currency has for many years been more closely attached to the United States dollar, by simple proximity and related business interests, than to the pound." [12] Estimates of Canadian assets at the outbreak of the war are reproduced in Table 69, above. In peacetime, Canada had been able to pay for her import balance with the United States with her export balance with the United Kingdom. With the progress of the war, Britain was no longer able to pay for Canadian supplies in gold or foreign exchange. No gold was imported from Britain after December, 1940, and Canada received for most of her exports to Britain sterling balances held in London, which, in part, could be used for the repatriation of Canadian securities held in England but not for the payment of supplies from the United States. It was thus necessary to make financial arrangements enabling Canada to receive imports from the United States, lest Canada would have been forced to liquidate United States securities held by her nationals. A Joint Economic Committee was established to secure closer economic coöperation of the two neighboring countries, shipments from Canada were stimulated to balance her excess of imports, and shipments to Canada of equipment to be manufactured into products for Great Britain were made available to Canada on the same terms which prevailed for direct shipments to Britain (lease-lend, see below, p. 301).

The following table contains a specification of the decline in the sterling area's gold and dollar exchange assets during the first sixteen months of the war. All figures had been supplied to the United States

12 W. F. Crick, *An Outline of War-Time Financial Control in the United Kingdom* (New York, The Macmillan Company, 1941), p. 16. By permission of The Macmillan Company, publishers.

Secretary of the Treasury by the British financial authorities, except the estimate of private dollar balances, which was taken from United States Treasury data.[13] As the table indicates, the available gold and dollar exchange assets of the British had declined to $1,811,000,000 by January 1, 1941.

TABLE 70.—GOLD AND DOLLAR EXCHANGE ASSETS OF THE UNITED KINGDOM, AUGUST 31, 1939, AND DECEMBER 31, 1940
(IN MILLIONS OF DOLLARS) *

| | *Amount held Aug. 31, 1939* | *Expended by Dec. 31, 1940* | *Amount held Dec. 31, 1940* | | |
|---|---|---|---|---|---|
| | | | *Total* | *Unavailable* [a] | *Net available* |
| Gold | 2,038 | 1,746 | 292 | 51 | 241 |
| Official dollar balances | 50 | +4 [b] | 54 | 0 | 54 |
| Private dollar balances | 545 | 240 | 305 | 305 | 0 |
| Marketable United States securities | 950 | 334 | 616 | 0 | 616 |
| Direct and miscellaneous investments in the United States | 900 | 0 | 900 | 0 | 900 |
| Total | 4,483 | 2,316 | 2,167 | 356 | 1,811 |

* *Hearings* before the Senate Committee on Foreign Relations, 77th Cong., 1st Sess., on S. 275 (Washington, 1941), Part 1, p. 81.

[a] The British excluded as unavailable $30,000,000 of gold scattered in different parts of the world, $21,000,000 of gold held against outstanding forward exchange contracts, and $305,000,000 representing private dollar balances necessary for current commercial transactions.

[b] Increase.

The drain upon the gold and dollar resources only in part reflected the total gold and dollar requirements of the sterling area during the first sixteen months of the war. These had amounted to $4,346,000,000, $2,030,000,000 of which had been met by gold and dollar receipts of the area, leaving $2,316,000,000 to be met by the liquidation of existing assets. The expenditure of $4,346,000,000 had been composed

[13] Slight differences between these figures and previous American estimates (for example, those presented in Table 69, above) are explained in "Gold and Dollar Resources of the United Kingdom," *Federal Reserve Bulletin*, February, 1941, p. 100. For an independent estimate, which likewise "reveals the obvious fact that the British require aid," see Seymour E. Harris, *op. cit.*, pp. 247–72.

of the following items: Payments by the United Kingdom to the United States, $2,282,000,000 ($1,380,000,000 for government orders and related items, $902,000,000 for shipping, interest, and miscellaneous charges). Payments to the United States by Empire countries (excluding Canada and the United Kingdom) were $483,000,000; payments outside the United States requiring gold or dollars were $775,000,000; and withdrawal of capital by Americans and others from Britain absorbed $735,000,000. Together with a miscellaneous item of $71,000,000, these items add up to $4,346,000,000.

Among the gold and dollar receipts of $2,030,000,000, the largest item was represented by $965,000,000 of proceeds of the sale of Empire gold, including new production and amounts recovered from hoards. Merchandise exports to the United States from Empire countries, excluding the United Kingdom and Canada, accounted for $640,000,000; merchandise exports from the United Kingdom, for $205,000,000. The remainder of $220,000,000 was composed of various items, including service charges and dollar receipts from areas outside the United States.[14]

In view of the difficulties which confronted Britain in financing additional war orders in the United States, legislation was secured in March, 1941, designed to carry out the policy of making the United States the arsenal of the world's democracies in their fight with totalitarianism. The Act to Promote the Defense of the United States, commonly referred to as lease-lend act, of March 11 (Public No. 11, 77th Cong., 1st Sess.), authorized the President to "sell, transfer title, exchange, lease, lend, or otherwise dispose of," whatever defense articles he chooses, to any country whose defense he deemed vital to the defense of the United States. Whether the recipients will be required to return the commodities or make payments depends upon the terms imposed by the President in the disposition of the materials. No announcements were made of these terms. In March, $7,000,000,000 were appropriated to carry out the purposes of the act. This sum had been nearly completely allocated in October, 1941, when Congress approved a second appropriation of $6,000,000,000. Not all monies

[14] *Hearings* before the Senate Committee on Foreign Relations, 77th Cong., 1st Sess., on S. 275 (Washington, 1941), Part 1, pp. 82–83.

under the lease-lend program were used for shipments to Britain and her allies, but parts were granted as loans to Latin American republics, particularly Brazil.

The lend-lease program is apt to prevent the rise of a huge international war debt such as existed after the World War of 1914–18. Debts must be liquidated by importing goods and rendering services by the debtor to the creditor country. In the postwar period, transfers to the extent required by huge war debts are anything but helpful in the task of reconstructing international economic relations and the domestic economy. Since they are, thus, either cancelled or in default, they result only in friction and ill-feeling among nations.

*Foreign investments of the United Kingdom.*—At the time of the enactment of the lend-lease law Britain still was in the possession of foreign investments outside the United States estimated at $15,000,000,000. Would it have been feasible and desirable to force Britain to liquidate these investments and use the proceeds for the payment of supplies from the United States? Since no other purchaser would have been available, the liquidation of these investments would have consisted of their transfer to the United States. Over one-half of them was in Empire countries, and most of the remainder in Europe, South America, China and Japan.[15] "British companies all over the world would fall into the possession of the United States government. The United States would not only become a gigantic trading organization in rubber, tin, gold, diamonds, etc., but would have taken the longest step toward world-wide imperialism and domination that has ever been taken by any country. Furthermore, irrespective of the outcome of the war, Great Britain would then have lost. The British now pay for their excess of imports, which are largely indispensable food and raw materials, out of income on foreign investments and earnings on shipping. Should the income be lost, continuance of imports of indispensable supplies would be possible only through the acceptance of a much lower standard of living." [16] From the point of view of the United States, the value of such transfer of title to in-

[15] For detailed estimates see *Hearings* before the Senate Committee on Foreign Relations, 77th Cong., 1st Sess., on S. 275, Part 1, p. 15.

[16] Seymour E. Harris, letter to the New York *Times*, December 22, 1940.

vestments in foreign countries would be negative. To our gold stock in excess of $22,000,000,000 new billions of claims to foreign wealth would be added, claims which under existing institutional arrangements we are neither able nor willing to utilize. Throughout the years, we have exported more than we were willing to admit in imports. In an industrial society like ours it is not the acquisition of existing foreign investments which is advantageous but the making of new ones. Only if our productive capacity were fully utilized at normal times could our economic institutions stand the strain of a constant and large excess of imports over exports, and even under these circumstances the reversal would necessitate painful adjustments of our industrial structure.

It is again another question whether or not Britain should be forced into the large-scale liquidation of her investments in the United States. During the World War of 1914–18, British-owned American securities had been "borrowed" by the British authorities and had been used as collateral for American loans. During the present war, the British Treasury was authorized to acquire any kind of securities marketable outside Great Britain. Starting in February, 1940, residents of Great Britain were required to sell specified United States securities to the British Treasury, which, in turn, liquidated these securities in the American market, receiving dollar exchange in return. Though the sales were conducted in a cautious manner, some degree of disturbance of United States securities markets was unavoidable. Still other problems were created by the proposed liquidation of direct and miscellaneous investments in the United States. British-owned or controlled concerns in the United States included insurance companies, prominent rayon companies such as the American Viscose Company, Lever Brothers, largest soap manufacturer in the United States, Shell Union Oil, Brown & Williamson Tobacco Corporation, and holdings of valuable real estate in Manhattan and elsewhere. In March, 1941, the American Viscose Company was actually taken over by a group of investment banking firms in the United States. Though this company had been estimated to represent one-tenth of the British investments in the United States, the British stockholders received only the equivalent of $54,000,000, a sum which

made experts inclined to regard the transaction as distress sale. Moreover, it was recognized in the United States that the liquidation of British assets in the United States was bound to have the most serious repercussions which would come to the fore after the conclusion of the war. In the past, the earnings of British investments in the United States contributed to the payment for American exports to Britain. If these earnings are no longer forthcoming, peacetime purchases of American goods must be curtailed and American export trade suffers.

In view of these considerations legislation was passed in June, 1941, authorizing the Reconstruction Finance Corporation to make loans to foreign governments on the security of American investments of their nationals. The first loan, amounting to $425,000,000 was granted for the purpose of bridging the gap between cash and carry and lend-lease and was to be used for the payment of war materials contracted for before the enactment of the lend-lease legislation.

*British export policy during the war.*—British export policy during the war was subject to changes which reflected the development of the conflict and, in particular, American policy in the matter of financial aid. There was the additional factor of time. When changes in policy were made they could not take effect at once but a transitional period had to be allowed to pass before the effects of the previous policy had been fully terminated.

Before the outbreak of the war, the opinion had prevailed in England that in view of the lack of foreign credit facilities a gigantic export effort would be required to secure payment for the necessary shipments to Britain. Actually, however, it was not before the defeat of France that vigorous attempts were made to increase foreign sales. In May, 1940, the unofficial sterling rate fell to a low of little over $3.00, and British exporters "expanded their sales in response to the increased supplies of cheap sterling put at the disposal of foreign importers." [17] The passage of the lend-lease act enabled the British to

[17] Harris, *The Economics of American Defense*, p. 241. Mr. Harris presents a complete treatment of foreign exchange policies during the war. The shift in emphasis away from the stimulation of exports at all costs explains the subsequent stability of the official and unofficial sterling rates. Depreciation, which makes imports dearer and exports cheaper, would have been meaningful only as com-

relax in their export efforts and concentrate their domestic production upon the requirements of their war economy. However, the effects of the former policy could not be brought to a sudden termination at that time, when numerous orders still called for completion. This, in turn, led to complaints of American exporters about increased English competition in Latin America. Subsequently the British government announced the following policy:

I. No materials of a type the use of which is being restricted in the United States on the grounds of short supply, and of which we obtain supplies from the United States, either by payment or on lend-lease terms, will be used in exports with the exception of the following special cases:
   (a) Material which is needed overseas in connexion with supplies essential to the war effort for ourselves and our Allies, and which cannot be obtained from the United States.
   (b) Small quantities of such materials needed as minor though essential components of exports which otherwise are composed of materials not in short supply in the United States.
   (c) Repair parts for British machinery and plant now in use, and machinery and plant needed to complete installations now under construction, so long as they have already been contracted for. . . .
II. Materials similar to those being provided under lend-lease which are not in short supply in the United States will not be used for export in quantities greater than those which we ourselves produce or buy from any source.[18]

## Totalitarian Barter Trade and the "New Order"

We turn now to the trade practices pursued by Germany and to the much publicized "new order" which the Nazis pretend to have established in Europe. As early as during the late 'thirties, the meaning and purpose of Germany's foreign trade had become fundamentally different from that of the other countries. At that time, Germany

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ponent of a policy designed to stimulate exports. British exports declined from £485,569,000 in 1939 to £439,273 in 1940, while imports rose from £885,513,000 to £1,099,869. The official sterling rate has been $4.03.

[18] *Correspondence Respecting the Policy of His Majesty's Government in the United Kingdom in Connexion with the Use of Materials Received under the Lend-Lease Act*, September 10, 1941 (Cmd. 6311, London, H.M.S.O., 1941), p. 3.

had attained a good measure of full employment of her resources, and, unlike the democracies, she did not stimulate her exports, merely tolerating imports, but exported in order to be able to obtain imports. As will be shown subsequently, the "new order" is nothing but a systematic attempt at "scientific looting" designed to obtain imports without exporting, in other words, an attempt to obtain goods without granting anything in return. To understand the complexity of this system of deliberate exploitation, it is necessary briefly to review Germany's international economic policy before the outbreak of the war.

During the early 'thirties Germany had embarked upon a policy of controlling foreign exchange and imports. This policy, which originally was designed to maintain the international exchange value of the German mark during the great depression, came to be used later on as a means of making other countries politically dependent upon Germany, political dependency following upon commercial dependency. Starting in 1932, Germany entered into a number of clearing agreements with countries in the southeast of Europe and elsewhere. These countries had purchased more from Germany than they were able to pay for under the conditions prevailing during the great depression, and, as a consequence of the clearing agreements, exports from southeast-European countries to Germany increased from 4.6 percent of total German imports in 1929 to 14.8 percent in 1938.[19] These countries, thus, acquired large balances on the clearing with Germany and were forced into the position of creditors unless they accepted such imports as the Germans were willing to send them, including large supplies of mouth-organs and aspirin sufficient for many years. In view of the position in which these countries found themselves, the aspirin may have served a good purpose.

> Once entangled in the web of barter trade, these countries could not extricate themselves from dependence on the German market. . . . They could not liquidate the balances in their trade account with Germany. . . . Germany induced them to shift their production away from . . . world-competitive products . . . to products com-

[19] H. Staudinger, "The Future of Totalitarian Barter Trade," *Social Research* 7: 418 (1940).

plementary to German production. . . . This shift in production was accompanied by new, often German, investment for the processing of such products, which meant increased employment and thus increased dependence. . . . After the barter procedures had succeeded in coördinating German economic interests with those of the agricultural and raw material countries the National Socialist leaders recognized the possibility of utilizing the support of certain interested groups in these countries for closer political connections. . . . Germany's political influence, once achieved, served in turn to strengthen her bargaining position when it began to be weakened by increasing demand for raw materials. . . . If Germany should survive the present war, and have gold and foreign currency at her disposal, she would use the barter system as a means of exploiting the satellites within the orbit of her political power and as a tried and true weapon for further political conquest—a weapon much more effective overseas than bombing planes and submarines.[20]

With the stronger-currency countries, which had an active balance of trade with Germany, Germany concluded various types of payment agreements. Under the influence of exchange controls which gradually became more comprehensive and stringent, the commercial creditors in these countries acquired a growing volume of blocked marks, frozen accounts which could be used only for a number of strictly defined purposes. The uses to which blocked marks could be put included travel in Germany and other expenditures in Germany, and, within limitations, the payment of exports from Germany. Since the foreign owners of the blocked accounts were willing to mobilize them at the cost of financial sacrifices, they were given opportunities of selling them at heavy discounts to other foreigners who were desirous of using them for the payment of exports from Germany. German foreign creditors were thus made to contribute to a subsidization of German exports. Another part of the blocked accounts was purchased by agents of the German government, which thereby reduced Germany's foreign indebtedness without rendering full payment.

The much publicized "new order in Europe" represents an extension and intensification of the German system of control over foreign trade whereby foreign countries are made economically and

[20] *Ibid.*, pp. 421–22, 426–27.

politically dependent upon Germany. Under the cloak of this slogan, the satellite countries are now being made to "export" to Germany without receiving corresponding imports or other payments. There is little doubt that Germany, should she be in a position to do so, would be very eager to substitute for the "new order in Europe" a "new world order."

In the long run, the "new order in Europe" consists of the permanent enslavement of the subjected countries. Their industries, being the most important source of potential armed strength, will be destroyed and they will be allowed to carry on a predominantly agrarian economy, with other primary production, to supply their masters with the necessary prerequisites of industrial civilization. Industrial production itself will be monopolized by Germany: The long-range objective of centralizing industrial production in the Reich with the satellites supplying raw materials and food found expression in the different status granted to the various countries overrun by the German war machine. Those countries or parts of countries which were most highly industrialized were incorporated into the Reich (Austria, Sudetenland, Alsace Lorraine, Luxembourg, annexed parts of Poland) or placed within her customs frontier (Netherlands, Czechoslovakian "Protectorate"), while predominantly agricultural regions were left outside (Slovakia, Polish Government-General). Industries in the non-incorporated territories were acquired by Germany or placed under strict control. Since industry is more productive than primary production and is the essential prerequisite for total war, Germany, by reserving for herself the industrial monopoly, also reserved for her nationals the standard of living which industrial civilization entails, the capability of waging war, and the opportunities in buying and selling which go with a monopolistic position. Germany's power to influence the terms of trade in her favor would not be limited to the continent of Europe. The "new order" would make her "as nearly as possible the only European buyer of the primary products of countries outside her borders." [21]

In the short run, the new order blessed all countries under the

[21] Royal Institute of International Affairs, *Europe under Hitler* (New York, Oxford University Press, 1941), p. 12.

German yoke or influence with "favorable" balances of trade. In other words, these countries were drained of available supplies to feed the German war machine. Furthermore, the German economic conquest was completed by the wholesale acquisition of foreign enterprises. All this was accomplished by various devices designed in part to give the system of scientific looting the outward appearance of respectability and to transfer the loot through the traditional commercial channels.

1. Excessive occupation payments were exacted from all conquered countries. The excess of these payments over actual costs of occupation was deposited with the various central banks and was thus available for the "payment" of such acquisitions which the Nazis were desirous of making. For example, by March, 1941, 62,000,000,000 francs had been accumulated on the German account with the Bank of France.[22] These monies were used for draining France of presently available supplies and for acquiring the controlling interests in various industries. Financial control over industries was secured by means of various devices, including the acquisition of banks which then starved such enterprises as the Germans wanted to acquire of credit and forced them into sales. Other industries were made subservient by the threat of terminating raw material supplies.

2. All central banks were loaded with uncollectible claims against Germany. For example, the elimination of trade barriers between Germany and the Netherlands was used for making the wealth of the latter country available to the Nazis. German marks were exchangeable at the fixed rate of 132.7 marks against 100 guilders, and thus could be used for the acquisition of Netherlands commodities and enterprises. From July 1, 1940, to June 30, 1941, the Netherlands Bank's account of foreign bills increased a thousand times, from 300,000 guilders to 308,000,000 guilders. The sundry account, which likewise contained reichsmark claims, increased from 7,700,000 guilders to 217,000,000 guilders. During the one week ending June 30, 1941, total claims of the Bank against Germany increased by 31,400,000 guilders.[23]

[22] *Neue Zürcher Zeitung*, June 11, 1941.
[23] "Plunder Indices," *Economist*, August 23, 1941.

3. Other countries were exploited by way of their clearing with Germany, which was used for making their balance of trade as "favorable" as possible. While Denmark, for example, had owned 56,000,000 kroner on the clearing with Germany in December, 1939, Germany owed 488,000,000 kroner in February, 1941. This amount represented about one-third of total Danish exports during an average year. Its equivalent had thus been sent to Germany and the Danes were given uncollectible claims in return. Apart from the clearing balance, Denmark had advanced an additional 536,000,000 kroner for "occupation costs" up to March 1, 1941.[24]

4. German "purchases" and the migration of Germans to the conquered territories were stimulated by a systematic manipulation of exchange rates. The exchange rates between the reichsmark and the currencies of the occupied countries were fixed by the Nazi authorities in a manner resulting in the overvaluation of the reichsmark to the extent of 5 to 63 percent.[25] A reichsmark thus bought a larger amount of goods in these countries than it would buy at home. To varying degrees in the different countries, this method of facilitating and encouraging plundering defeated itself by the concomitant increase in prices, which was stimulated by the increase in the volume of the currencies of the conquered countries. Such increase occurred because the central banks had to make payments on the accounts held by the German authorities, had to acquire German marks which their nationals had received in payment from the Nazis, and had to make advances to their nationals on their clearing claims against German debtors.

5. During the war a central clearing office was established in Berlin designed to substitute a multilateral clearing system for the various bilateral clearings of Germany and other countries. As has been noticed, "such an arrangement would be in many ways an ideal substitution for the open exchange market. The system is by no means a Nazi invention and certainly it does not form an integral part of the Nazi economic system. . . . It is to be feared that the idea of multilateral clearing may become discredited through its

[24] *Neue Zürcher Zeitung*, March 14, 1941.
[25] Royal Institute of International Affairs, *Europe under Hitler*, p. 35.

abuse by Germany. This would be unfortunate, for multilateral clearing is undoubtedly the system of the future, and its eventual adoption would suffer delay if it became thoroughly unpopular through the German experiment." [26] Under this system payments are made in the following manner. If, for example, a Swiss importer wants to make payment for his imports from Belgium, he calculates the amount of his debt in reichsmarks and purchases this amount from the Swiss National Bank, which has a reichsmark deposit with the German clearing institute. The sum is then transferred from the account of the Swiss National Bank to that of the Belgian central bank, which pays it to the Belgian exporter.

However, as the multilateral clearing operates in continental Europe, it is just another device for giving Nazi exploitation the appearance of commercial respectability. The clearing is never balanced since Germany owes large amounts to all participants. Since the foreign exporters are unable to postpone the collection of their clearing balances indefinitely, they are given advances by their central banks, which thereby become the creditors of the clearing balances. "Automatically" cleared are only payments; the transfer of goods itself is completely under German control. Germany may, as the Swiss complained, refuse to deliver certain goods over the clearing and make such supplies dependent upon the payment of free currencies or upon the delivery of specific commodities. She may further manipulate the exchange rates. She may allow one country to recover its clearing balance by means of exports from another, whose balance would correspondingly increase. It is finally complained that the expenses of doing foreign business have been multiplied by the imposition of German middlemen who have replaced formerly existing direct contacts.[27] A multilateral clearing is a good thing if exports and imports of all participants are balanced for all of them together. As the Germans operate it, this does not happen but the clearing is used for making all other participants involuntary creditors of Germany.

[26] From Paul Einzig, *Hitler's "New Order" in Europe* (New York, The Macmillan Company, 1941), pp. 96, 101–102. By permission of The Macmillan Company, publishers.

[27] *Neue Zürcher Zeitung*, March 26, 1941.

## Hemisphere Defense

During the 'thirties Germany started her attempts to penetrate the Latin American republics by means of similar devices which enabled her to cajole an ever-increasing number of countries in southeastern Europe into the network of totalitarian barter trade with its concomitant political domination on the part of the partner holding the stronger bargaining position. It was expected that Germany's bargaining strength, should a German victory occur, would increase immensely, since the Nazis then were to represent the united commercial power of the whole continent of Europe. In 1937, the principal destinations of the exports of the twenty Latin American republics had been as follows: continent of Europe, 31 percent; United States, 31 percent; United Kingdom, 18 percent.[28]

The degree to which these countries were dependent upon the European import market varied among the several republics, being dependent upon their principal products. For many commodities, the United States was the major market, "taking from about three-fifths to four-fifths of the total American export. These include coffee, sugar, bananas, cacao, and fibers. Other products, such as meats, wool, cotton, wheat, corn and cereals, go largely to Europe, with little or none going to the United States. The products which go mainly to the United States come largely from the Caribbean countries, Colombia, and Brazil. Those which go primarily to Europe come mainly from the countries further south, especially Argentina, with Peru and Uruguay also important for particular products, such as cotton, meat, and wool." [29]

With the elimination of the continent of Europe from international trade the twenty Latin American republics were thus in a situation where they had to find new purchasers for nearly one-third of their exports. At the same time, they had to find new sources of supplies to take the place of the imports previously obtained from continental Europe. Until early in 1941 it was generally believed that

[28] *Hearings* before the Temporary National Economic Committee, Part 21 (Washington, Government Printing Office, 1940), p. 11363.

[29] Mordecai Ezekiel, "Economic Relations between the Americas," *International Conciliation* 367: 112 (1941).

imports from the United States would be limited by the anticipated lack of ability of the Latin American republics to pay for any considerable expansion of the volume of their imports from the United States. It was the opinion in 1939 and 1940 that the structure of production prevailing in the Western Hemisphere would not permit of any large-scale increase in Latin American exports to the United States. Broadly speaking, it was pointed out, the Western Hemisphere is composed of numerous countries engaged in primary production, with only one highly industrialized region,

> only one great aggregation of consumers of cotton, wheat, meat, hides, copper, oil, sugar and coffee. It is the United States. As things stand now, a Western Hemisphere bloc would be a lop-sided economy in which the production of primary products and crude foodstuffs would far overbalance consumption. Furthermore, on the production side it would not furnish in nearly adequate volume the following raw materials essential in peace and in war: antimony, chromite, magnesite, manganese, manila fiber, mercury, potash, quinine, rubber, tin, tungsten, vegetable oils.[30]

However, the progress of the United States defense program with its concomitant increase in civilian purchasing power and consumption resulted in an increase in Latin American exports to the United States much in excess of what had been held likely. During 1941 it seemed that many of the apprehensions which had been felt with respect to the non-complementary character of production in the Americas were exaggerated, at least in the short run. Economic thinking in the United States had for long been geared to conditions of less-than-full employment of resources and manpower. Under the influence of a growing volume of employment and the defense program, United States purchases in Latin America increased in 1940 and 1941 at a rate sufficient to offset the loss of the European market. In 1941, the balance of trade, which in the past had been active for the United States, became active for the Latin American republics. Contrary to expectations, it was not the unsuitableness of Latin American exports which proved to be the limiting factor to United States

[80] Percy W. Bidwell and Arthur R. Upgren, "A Trade Policy for National Defense," *Foreign Affairs*, January, 1941, special reprint, p. 10.

exports to the Latin American republics but the inability of the United States to expand her own deliveries on a large scale in view of greatly increased domestic requirements. It had thus become apparent that the economic problems not only of the United States but of the whole Western Hemisphere could be solved with relative ease once a high level of employment and income prevailed in the United States.

A solution of the problems of the Latin American republics was indeed imperative, lest the political tranquillity and economic security of both Americas might become subject to grave disturbances. If the republics had found no outlets for one-third of their exports, the resulting economic instability would have made them susceptible to foreign, particularly German, influence. If the continent of Europe would remain under German rule after the end of the war, the republics would be exposed to unbearable pressure should they remain commercially dependent upon exports to Europe. Past experience indicates that totalitarian trading methods would lead "first to the economic penetration and then to political control of the countries to the south of us. If we would prevent the emergence of an American Balkans, where we would first lose our markets and critical supplies, ultimately perhaps our ability to defend ourselves, it is imperative that we lead, vigorously and promptly, in the erection of a united front of American nations, ready and able to repel all attempts at totalitarian domination." [31]

Hemisphere defense thus had to develop inter-American trade and to encourage collective arrangements on the part of the republics in order not to expose a single country to the combined bargaining strength of Europe. More far-reaching plans were formulated in the direction of the establishment of a trading area composed of the Western Hemisphere and the British Empire after the restoration of peace. With respect to the development of inter-American trade, it will be helpful to distinguish long-term and short-term policies. Short-term policies included measures designed to remove obstacles to the flow of trade among the Americas and to facilitate the disposal of

[31] P. T. Ellsworth, "An Economic Foreign Policy for America," *American Economic Review*, sup. 30: 306 (1941).

surpluses. From a long-term point of view it was, however, necessary to supplement measures of this type by such adjustments in the productive structure of the various republics as could be executed under the prevailing conditions. There was much reason for the belief that the extent to which such adjustments would be necessary was dependent upon the degree to which the United States would be able to maintain full employment in the post-emergency period. A more ambitious program of long-term adjustments would include reductions of wheat production in Canada, of wheat, corn, flaxseed, meat, wool and hides in Argentina; of wool and fruits in Chile. In its positive aspects, such a program would stimulate the production of materials with respect to which the hemisphere was deficient, such as rubber and tin, and encourage the various factors which contributed to the fact that "a few regions [in Latin American] are on the threshold of a very considerable industrialization." [32] It is because of the industrial potentialities existing in Latin America that this continent has become the foremost frontier of the world. If further progress in this direction is vigorously stimulated, various Latin American republics will gradually become less dependent upon foreign markets for the sale of primary products; their now depressed productivity will increase by leaps and bounds, and the whole process will greatly strengthen the flow of trade between a prosperous United States and the Latin American republics.

Because of its long-term character and the various difficulties involved in adjustments of the described nature a program of this type has been characterized as "visionary and impracticable," [33] and it has been proposed at least to supplement it by other measures. Most important among these are policies designed to unite the bargaining strength of the Americas. Whatever the outcome of the present conflict, its conclusion is likely to usher in a period of greatly increased demand for agricultural and other primary products. Though this period may be of short duration, it will give the Americas, if their

[32] George Wythe, "The New Industrialism in Latin America," *Journal of Political Economy* 45: 228 (1937).
[33] Bidwell and Upgren, *op. cit.*, p. 13.

commercial strength is united, an unprecedented opportunity for insisting upon their terms of trade and preventing commercial and political exploitation.[34]

However, it goes without saying that such long-range programs are the wisest which are apt to cope with the most adverse conditions. In a postwar world characterized by the maintenance of the present structure of production in the Americas and a trade depression with unemployment and low national income in the United States, the latter would be likely to be unable to provide the Latin American republics with alternative markets for their products. Since such markets would be available in the British Empire, it has been proposed that "we should set in motion now plans for an economic union which would include the Western Hemisphere and the British Empire." [35] A British victory, it is held, does in itself not guarantee the revival of liberal trade policies. As the London *Times* pointed out in a recent editorial, "we must reconcile ourselves once for all to the view that the days of laissez-faire and the unlimited division of labor are over; that every country—including Great Britain—plans and organizes its production in the light of social and military needs; and that the regulation of this production by such 'trade barriers' as tariffs, quotas, and subsidies is a necessary and integral part of this policy." [36] Though the Eight-Point Declaration of August, 1941, was bound to have some reassuring effects with respect to the postwar trade policies, it was still held in many quarters that more concrete arrangements in the direction of an economic union composed of the British Empire and the Western Hemisphere would be most helpful.

Balancing all factors, it appears that the inclusion of the entire British Empire in a trading area with the Western Hemisphere would roughly reduce by one-half the export surpluses of that area. The addition of the Empire countries, moreover, would assure supplies of essential raw materials in which the Western Hemisphere is deficient: the jute and manganese of India, the rubber and tin of the Malay States, and the chromite and tungsten of South Africa.

[34] Staudinger, *op. cit.*, pp. 431–32.
[35] Bidwell and Upgren, *op. cit.*, p. 17.
[36] January 11, 1941.

The combined Western Hemisphere–British Empire bloc would not provide complete self-sufficiency on the import side. Judging from 1937 figures, it would still need to purchase from other areas such items as dairy and poultry products, meats, timber and lumber, pulp and pulpwood. But its needs would not be so critical nor so extensive as to place the area in a position of inferiority if it had to bargain with, or to fight against, other areas.[37]

[37] Bidwell and Upgren, *op. cit.*, p. 15.

# CHAPTER XI

# HOW TO PAY FOR THE WAR

## The War Effort in Terms of Money

In conjunction with the discussion of the war effort in real terms it has been pointed out (above, Chapter IV) that money does not deserve to be called the sinews of war. It is manpower, resources, and production that count, and the role of money is limited to functions of secondary nature. "The failure of many people to grasp the distinction between real war costs and the money figures used in our accounting is amusingly illustrated by a scheme recently reported in the press. In Scotland, it has long been the fashion to throw a penny from the window 'for luck' while crossing the famous Firth of Forth bridge on the train. Inspiration: why not send down a diver to pick up the pennies and apply them to buying additional aircraft? The obvious answer has been overlooked: the diver is much more useful in helping repair damaged ships. If additional pennies will help produce aircraft, it is much simpler to stamp out additional pennies and put them in circulation. But since all available men, machines and materials are already going into plane production, more pennies will not help." [1]

While disbursements of money do not represent the war effort itself, they are apt to measure it. What defense dollars buy can be seen in the following catalog: [2]

$1: 16 cartridges
$2: three cotton shirts
$3: one bayonet
$6: one anti-tank shell
$10: one tent

[1] Albert Gailord Hart and Edward D. Allen, *Paying for Defense* (Philadelphia, The Blakiston Company, 1941), p. 81.
[2] *Life*, March 24, 1941, p. 36; Office for Emergency Management, *Defense—One Year* (Washington, Government Printing Office, 1941), pp. 9–10.

$11: one shell for 75-mm. gun
$15: one 25-lb. fragmentation bomb
$21: pay for one Army private for one month
$27: one .45 automatic pistol
$30: one chaplain's outfit
$50: one Springfield rifle
$80: one Garand rifle
$100: one shell for 240-mm. howitzer
$160: one 8-in. armor-piercing shell
$450: one Browning machine gun
$500: one motor trailer
$900: to fire a 14-in. gun from a battleship
$1,000: one reconnaissance car
$1,300: one searchlight with tower mount
$1,600: to fire a 16-in. gun from a battleship
$2,400: one Army lieutenant's pay for one year
$5,000: one tractor truck
$8,000: pay for one rear admiral or one major general for one year
$10,000: one primary trainer plane
$27,000: one light tank
$67,000: one medium tank
$70,000: one pursuit plane
$75,000: pay for the Commander in Chief of the Army and Navy for one year
$110,000: new roof for Watertown, Mass. arsenal
$114,000: one heavy tank
$220,000: one four-engine long-range bomber
$8,000,000: one destroyer
$20–30,000,000: one cruiser
$50,000,000: one aircraft carrier
$70,000,000: one 35,000-ton battleship such as the U.S.S. *North Carolina.*

There are, however, very distinct shortcomings of money even in its limited function as measurement of the war effort. Though it is possible to calculate the money cost of this effort, the resulting

figure cannot comprise such costs as cannot well be expressed in monetary terms, as, for example, the individual sacrifices for which monetary compensation cannot be made, or is not made, or is inadequately made. Moreover, certain costs, though they may lend themselves to monetary measurement, must be estimated since they are not represented by disbursements of money. Among these implicit costs there is the reduction of production for civilian consumption once men and resources are diverted to war production. On the other hand, no real cost in the sense of satisfactions foregone is incurred as long as the defense effort is carried on by the utilization of men and resources otherwise unemployed, while money costs do arise under this method.

Comparisons of the monetary outlays for defense and war of different countries and at different times suffer from other defects of the monetary yardstick. Since its value is not stable but changes inversely with the general level of prices, comparisons of disbursements over time are bound to give a distorted picture of the real extent of goods and services devoted to military purposes. This is of especial importance during the later stages of the war effort when prices usually have risen relative to the earlier periods. It has been calculated that our total war expenditure incurred in terms of 1917, 1918, 1919 and 1920 dollars was $39,000,000,000, but would have been only $13,000,000,000 in terms of the purchasing power of 1913 dollars.[3]

Comparisons of the money disbursements of various countries are hampered by the element of discretion which necessarily enters into such comparisons since the relative value of the various currencies is by no means easily ascertained. Quotations are often only nominal and do not reveal the true picture which is hidden by controls over exchange and foreign trade. Because of these shortcomings of the monetary yardstick it is often preferable to indicate the extent to which the war effort of the various countries absorbs their national income. This method, however, removes only part of the difficulties

[3] Bernard M. Baruch, *Taking the Profits out of War: A Program for Industrial Mobilization* (n.p., 1936), p. 21.

since it does not indicate the absolute size of the share of the national income devoted to military purposes.

A comparison of the war and defense effort of the various countries in terms of "international units" and dollars has been presented above, p. 79. During the years preceding the present war, the development in the different countries varied greatly.

> During the greater part of the period 1919–32, . . . England was spending on armaments . . . only about 2½ percent of her national income, France from 3 to 5 percent, Japan from 3 to 6 percent, Italy about 4 percent, Soviet Russia about 4 percent and the United States, Canada, and Germany, less than 1 percent. . . . By the end of 1935, . . . Germany . . . was spending for armaments over 17 percent of her national income, Japan over 8 percent, Italy close to 20 percent, and Soviet Russia over 12 percent. Great Britain, the United States, and Canada, however, failed to follow this trend. The armament expenditures of Great Britain still amounted in 1935 to but 3 percent of her national income, those of the United States to but 1½ percent, those of Canada to less than 1 percent. France, after spending more than Fr.10,000,000,000 on the Maginot Line, abstained for a time from any new large military outlays, feeling confident that these great fortifications were now protecting her amply against the possibility of any foreign attack. . . .
>
> Germany nearly quadrupled her armament expenditures during the years 1936 to September 1939, raising them to an amount which equaled more than one-third of her national income. Soviet Russia tripled hers during the same time. Italy, after a brief respite following the Ethiopian war, resumed the expansion of her armaments. Great Britain finally swung into action, increasing her armament expenditures three and one-half times during the two years preceding the outbreak of the war, so that these expenditures now amounted to more than 13.5 percent of her national income. France, however, harboring the illusion of security behind her steel wall, increased her armament expenditures during the same time much less extensively.
>
> During this period, the United States and Canada, however, raised their armament expenditures less than 10 percent, keeping them at the exceedingly low level of 1 and 1¾ percent of their national incomes, respectively.[4]

[4] Paul Studenski, "Armament Expenditures in Principal Countries," *Annals of the American Academy of Political and Social Science* 214: 31–32 (1941).

It goes without saying that the outbreak of the war in 1939 led to an intensification of the trend toward increasing absorption of the natural income by military expenditures. In 1941 Germany's total expenditures were apparently running at the annual rate of 72,000,000,000 marks, absorbing 72 percent of the national income estimated as 100,000,000,000 marks. Non-military public expenditures seem to account for 14–20,000,000,000 of the 72,000,000,000 marks.[5] Britain now spends at the rate of over £4,000,000,000 per year for all public purposes, and its war expenditure may absorb 50 percent of the national income. When the United States devotes a proportion of her national income to military purposes corresponding to that of Germany and England, the annual bill will be in the neighborhood of $50,000,000,000. Actually, defense expenditures in the fiscal year 1941 were $6,047,000,000, and estimates for the fiscal year 1942 were $24,000,000,000 as of January, 1942. Before that time, Mr. Stacy May of OPM indicated that United States defense production, in terms of dollars as well as percent of national income, did not measure up to the British output. He proposed an annual defense production of $50,000,000,000 and completion of expenditures of more than $100,000,000,000 by the end of 1943 or early in 1944, compared with the then existing program of $60,000,000,000.[6] As early as in May, 1941 patriotic men and far-sighted organizations had pleaded for a considerable expansion of the defense program. Mr. Donald Nelson of OPM had then proposed the speedy increase of defense production to $35,000,000,000 a year.[7] The National Planning Association advocated a defense program of $100,000,000,000 instead of the $40–50,000,000,000 then appropriated or authorized, and this expansion of the program was endorsed by Mr. W. L. Batt of OPM.[8] The reshuffling of the defense personnel in the fall of 1941 and the strategic position of Mr. Nelson, who was made executive director of SPAB (see above, pp. 50, 193), were interpreted as

[5] New York *Times*, February 8, September 12, 1941.
[6] *Ibid.*, October 18, 1941.
[7] Address before the annual convention of the National Association of Purchasing Agents, Chicago, May 28, 1941.
[8] Address before the annual convention of the Edison Electric Institute, June 4, 1941.

indicative of a vigorous expansion of the defense program. When the United States entered the war as a belligerent in December, 1941, SPAB proclaimed a victory program calling for total expenditures of about $150,000,000,000 in the next twenty-four or thirty months. Budget estimates for the fiscal year 1943 provided $53,000,000,000 for national defense.

At that time it had become apparent that countries which were unwilling to make financial sacrifices for the maintenance of their freedom were doomed to lose freedom and wealth as well. In France, fear of inflation had indirectly contributed to the defeat, because these fears induced her to reduce military outlays after the Maginot Line had been built. This fear of inflation led to a misdirected aversion to public spending. "In 1932 the French budget began to show deficits again. In itself an unbalanced budget is of no moment, and if it represents income-creating expenditures may even be a harbinger of returning prosperity; but in the French mind unbalanced budgets were associated with inflation, a falling franc, and instability. Confidence was shaken." [9]

Similar considerations had induced the chairman of the English Sound Currency Association to ask for a drastic reduction in defense expenditures in 1937 so that financial reserves would be on hand if war broke out! They were still operating in 1940 when the Chamberlain government introduced a war budget described as "miserably inadequate" by the *Economist:*

> In fact, it can be bluntly stated that if we spend money at that rate only we shall lose the war. . . . Is there any pretense that we shall win the war with a smaller effort than . . . [the Nazis]? . . . To make the wrong choice between taxation, borrowing, and inflation may cause us endless sorrow and social disturbance; but it will not lose the war. To set the limits of our war effort too low, on the other hand, to proceed with timidity rather than boldness, will mean losing the war.[10]

[9] From Benjamin Higgins, "The Economic War since 1918," *War in the Twentieth Century*, ed. by Willard Waller (New York, The Dryden Press, 1940), p. 173.

[10] "A Budget of Delusions," *Economist*, April 27, 1940, pp. 759–60. Cf. Alzada Comstock, "Financing National Defense in Great Britain and Canada," *Annals of the American Academy of Political and Social Science* 214: 111–12 (1941).

It was only after the defeat of France that England woke up. During 1940 the daily government expenditure increased nearly threefold.

## Principles of War Finance

Once the military effort is carried on by means of converting productive resources to war production, all methods of financing military expenditures involve the restriction of civilian consumption. To the extent to which civilian consumption is not restricted by taxation, borrowing and rationing, consumers are forced by higher prices to reduce their purchases to that amount of goods which is left after military requirements have been met. Alternative financial policies have little effect upon the amount of resources available for the war effort. The latter is, in the words of Keynes, "a question of materials and manpower—not of finance." [11] Alternative financial policies do, however, affect the distribution of the burden of war among the different groups of the population. Moreover, as has been pointed out above, p. 133, the different financial policies create different psychological atmospheres. In conjunction with the manner in which the war burden is distributed, this is a powerful factor affecting the productivity and morale of the people and their responsiveness to the exigencies of the war. Apart from the positive function of war finance (distribution of the burden of war), a negative function calls for the avoidance of any policy which may impede the solution of the real problems connected with the mobilization of manpower and materials. "The task of finance in war is to see that nothing is decided on financial grounds." [12]

More specifically, financial policies, *i.e.*, policies designed to produce means of payment for the war effort, consist of either loans or taxes. Rationing restricts civilian consumption but is not productive of revenue. However, savings, resulting from voluntary abstinence or induced by rationing, can easily be transformed into loans, and it makes little difference whether the government receives them directly from the individual citizens or permits the banks to create

11 London *Times*, February 5, 1941. See also above, pp. 76f.
12 "The Humbug of Finance," *Economist*, May 3, 1941, pp. 579–80.

a corresponding amount of purchasing power, as long as borrowing from banks is limited to the amount currently saved by the public.[13] If the amount of government revenue obtained through taxes and loans exceeds current savings, spending of the excess is "inflationary" in that higher prices reduce consumption to the extent required by the conversion of productive resources to war production.[14] As has been mentioned above, p. 129, inflation automatically closes any gap between the required reduction of consumption and such reduction of consumption as is brought about by means of voluntary saving and taxation. The gap is thus always closed, in part by means of the orderly and deliberate processes of voluntary saving and taxation, in part by inflation. If savings are defined to include "forced saving" (through taxation and inflation), savings always suffice to secure such war production as has been ordered.

In the following pages we discuss the relative merits of loans, taxes, and compulsory savings according to the Keynes plan.

*Loans vs. taxes.*—During the World War of 1914–18, little more than one-third of the government expenditures in England and the United States was covered by tax revenue. In no other country was it possible to attain this relatively moderate proportion. In Germany, only 13 to 16 percent of total expenditures were met by taxes, and if normal peacetime expenditure is deducted, taxes contributed almost nothing to the war.[15]

The most popular fallacy related to the relative merits of taxes and loans is the belief that the choice between them is capable of affecting the distribution of the war burden over time. While the incidence of taxation is said to fall upon the present generation, borrowing is believed to shift the burden of war to future generations. However, it is only if foreign loans are raised that part of the war burden can be shifted to future generations. These then have to make payment for the loans by exporting goods and rendering services

[13] See above, pp. 127–29.
[14] See above, pp. 130ff.
[15] Sir Walter T. Layton and Geoffrey Crowther, *An Introduction to the Study of Prices* (third ed., New York, The Macmillan Company, 1938), p. 122; Leo Grebler and Wilhelm Winkler, *The Cost of the World War to Germany and to Austria-Hungary* (New Haven, Yale University Press, 1940), p. 90.

to the foreign creditors. Internal loans do not affect the distribution of the war burden over time. Whatever financial method may be chosen to carry out the war effort, it is the present generation which has to do the work and to reduce its consumption. Future generations are only affected in so far as the maintenance of capital is neglected under the influence of the war effort and in so far as no additions are made to the existing capital. For example, sacrifices are imposed upon future generations if resources are diverted to war production which otherwise would be used for the maintenance of buildings, plants, machines and other instruments of production, or for increasing their number. However, these sacrifices do not result from any specific financial policy; they are produced by the diversion of resources to war production.

Though financial policies are unable to alter the incidence of the war burden over time, taxation and borrowing are of different bearing upon the distribution of wealth and income and may thereby affect the welfare of the postwar generation. If that part of current incomes which the present generation must forego for the sake of the war effort, is absorbed through loans, claims to future wealth are left with the creditors of the loans. To the extent to which these creditors are identical with the future taxpayers (debtors), the net effect of the transfer is zero. However, some measure of redistribution is bound to take place, its extent being dependent upon the composition of the creditor group and future tax policies. The composition of the creditor group, in turn, depends upon the extent of wartime inflation. As has been pointed out above, pp. 130, 163, in the absence of comprehensive rationing, the increase in employment and spendable incomes in wartime in conjunction with the inelastic supply of consumers goods leads to an increase in prices and to a concomitant reduction of real wages. These effects can be minimized if working people can be induced to engage upon a vigorous program of saving. In the absence of saving, the pressure for higher money wages is of little benefit to the working people as a whole. Their increased purchasing power is absorbed by prices sufficiently high to equalize demand and supply. By bidding up the prices of

consumers goods, working people, desirous of obtaining consumers goods, transfer their increment in purchasing power to the profit receivers without being able to obtain a larger volume of consumers goods than is left over after military requirements have been met. The profit receivers, whose marginal propensity to consume is lower than that of the wage earners, then acquire bank balances, securities, or other claims to future wealth. They, in short, become the creditors of the war debt.

On the other hand, in the absence of inflation prices are not bid up, the increment in the wage bill is retained by the workers, and the claim to future wealth is left with them. Since their propensity to consume is high in normal times, the resulting spending in the postwar period is apt to check the decline in national income and employment resulting from the cessation of wartime demand. War finance through loans is thus helpful in preventing a postwar depression if inflation is avoided. As has been shown elsewhere, this can only be accomplished by rationing, though taxation and stimulation of voluntary savings will be of considerable help.[16] Problems connected with the increase in the public debt during the war are further considered below, p. 339.

*Wartime taxation.*—With reference to wartime taxation, it must be noted that neither the principle of "ability to pay" nor that of "benefits received" can be allowed to stand without qualifications if the minimization of inflation is desired. Progressive taxes, *i.e.*, taxes that are presumably proportional to some arbitrarily estimated sacrifice of the individual taxpayer, levy a higher percentage of income or wealth from the rich than the poor. Progressive taxes tend to reduce the rate of voluntary saving, while proportional and regressive taxes reduce the rate of consumption. The more progressive the tax system, the higher the proportion of monies otherwise saved which the rich must use for the payment of taxes lest they would have to reduce their consumption. Rich people save a higher percentage of their incomes than poor people. If the tax system is progressive, the poor are thereby enabled to consume a larger proportion of their

[16] See above, pp. 126–30.

incomes, since the payment of taxes would require a reduction of consumption, their current savings being too small to suffice for tax payments.

Under conditions of full employment, the further expansion of production for military purposes can take place only at the cost of reducing civilian consumption. Inflation is thus bound to happen, unless civilian consumption is curtailed by means of rationing or severest taxation. "It is thus idle to complain that the taxes are affecting the spending power of the consumer. This is just what they should do, if a general price advance is to be objected." [17]

Under conditions of full employment there will thus have to be less emphasis upon progressive and more upon regressive taxes, including sales taxes and heavy excise taxes levied on goods in especially short supply. The progressiveness of certain taxes such as the income tax will have to be reduced by extending them to cover people on lower income levels. Exclusive reliance upon excess profits and similar "just" and "equitable" taxes is of little help in averting inflation since these taxes absorb incomes that would otherwise accrue to persons in the higher income brackets. While such taxes are needed to preserve the morale of labor, consumers, and the military, they reduce the rate of saving rather than the rate of consumption. Even income taxes which have been made less progressive do not represent a sufficiently powerful check of consumers' spending in view of the long delay which passes between earning and taxing of incomes. On the other hand, if prices and incomes rise at the same rate, the burden of a given system of progressive taxation becomes heavier since it absorbs a higher percentage of the increased incomes.

Though excess income taxes have certain advantages over excess profits taxes, reasons of administrative expediency and the desire to reach undistributed profits account for the widespread use of excess profits taxes in wartime. Excess profits may mean profits in excess of those made before the war or profits in excess of some more or less arbitrarily selected standard of normalcy. While the present British excess profits tax is of the former variety, the United States

[17] Gustav Cassel, "Shortage and Purchasing Power in Wartime," Skandinaviska Banken, *Quarterly Review*, January, 1940, p. 1.

Second Revenue Act of 1940 permits the taxpayer to select either method of computing excess profits. The Canadian arrangement is similar to that of the United States. Rates of the British tax were originally 60 percent but were stepped up to 100 percent in April, 1940. The Canadian excess profits tax rate is 75 percent. In the United States, rates were graduated from 25 to 50 percent under the Second Revenue Act of 1940 and have been increased to 35 to 60 percent under the Revenue Act of 1941.

It is often politically expedient to impose extremely severe rates of excess profits taxation. In 1919, after the World War of 1914–18, the Italians stepped up the rate to 100 percent and made attempts to enforce this tax under the influence of political pressure. "The burden upon business become utterly crushing. Rigorous enforcement only resulted in wholesale 'fiscal bankruptcies.' This could not go on; it was indeed only one aspect of the general breakdown of democracy in Italy; as the political wind changed, one alleviation followed another, until most of the outstanding claims against business capital had been written off. The attempt to secure social justice by stopping the activity of industry had made Fascism inevitable." [18] It has been pointed out that "the really dangerous thing about a 100 percent tax is not so much that it provides no incentive to make profits, but rather that there is no adequate inducement to avoid losses." [19] Once a firm has earned its normal profits, there is no monetary incentive left to stimulate economies in production and marketing and to check waste. It will become advantageous for firms to engage upon any kind of wasteful spending if the latter favorably affects profits during later times when the excess profits tax is no longer in force. In other words, from the standpoint of the firm any curtailment of present profits may be worthwhile if there is a chance that this may increase future profits.

These dangers involved in the more severe type of excess profits taxation are limited by the extent to which other than monetary incentives to efficiency and economy are operating. It has been

[18] J. R. Hicks, U. K. Hicks, and L. Rostas, *The Taxation of War Wealth* (Oxford, Clarendon Press, 1941), p. 62. By permission of the publishers.

[19] *Ibid.*, p. 101.

pointed out that the statement that severe excess profits taxation weakens the incentive to economize is a "dangerous argument. It means that in spite of all the appeals to the ordinary man to give his best to the nation, in spite of the fact, for example, that the rank and file are called upon to protect business property gratis and in precedence to the defense of their own homes, the business man cannot be relied upon to serve his country to the utmost unless an additional monetary incentive is provided." [20]

There is still another adverse effect of severe excess profits taxation. As contrasted with the former, this effect is of such a nature that it cannot be checked by an arrangement of business affairs inspired by patriotic impulses. Under conditions of inflation, firms will be desirous of retaining considerable portions of their profits in order to build up reserves. Under conditions of inflation, this is necessary lest the fixed as well as the working capital be impaired. Distribution of all profits would leave a firm "with an unchanged volume of working capital in terms of money; and this would be insufficient, at higher prices, to conduct the same volume of business as before, that is to say, to maintain the same output." It would also be impossible to replace fixed assets "out of the usual depreciation funds when the prices of fixed equipment had risen." [21] The danger of impairing fixed and working capital is maximized if profits are calculated upon the basis of original cost; it is minimized if the cost of reproduction is allowed to be taken into consideration in the calculation of profits. If an excess profits tax is levied at the rate of, say, 100 percent, firms are unable to build up sufficient reserves to cope with the impairment of their capital under conditions of advancing prices. In order to allay the difficulties of re-financing after the war, the British budget for 1941–42 carried provisions promising the return of one-fifth of excess profits tax payments after the war. These provisions represent the application of a novel device of war finance, which is a hybrid of loans and taxes and to which we must turn before taking up the discussion of war loans.

"*Deferred payments.*"—By "deferred payments" or "compulsory

[20] *New Statesman and Nation*, February 22, 1941, p. 174.
[21] Hicks, Hicks, and Rostas, *op. cit.*, p. 57.

savings" is meant the transfer of monies to the tax authorities, who will return them after the war is over. Deferred payments are neither taxes, since tax payments are not normally returned to the taxpayer, nor are they loans, since this concept does not embrace compulsory levies. They represent a peculiar blending of taxes and loans, which originated in the inventive mind of John Maynard Keynes, the British economist. For this reason, arrangements providing for deferred payments are usually referred to as the "Keynes plan." In its original form the plan was designed "to determine a proportion of each man's earnings which must be deferred—withdrawn, that is to say, from immediate consumption and only made available as a right to consume after the war is over." [22] Some other components of the original plan were family allowances, an exempt minimum income, a sharply progressive scale of payments, and stability of the prices of essential commodities. As long as these prices were kept stable, trade unions were to refrain from pressing for any increase in wages on the grounds of the cost of living. The deferred payments were to be deposited with post office savings banks and other institutions. While they normally would not be released before the end of the war, payments on life insurance and for contingencies would be allowed. After the war, the return of the compulsory savings would be financed by means of a levy on capital.

Advocates of deferred payments point out that a plan of this type would secure the execution of the negative effort of war (see above, pp. 125–34) without necessitating drastic taxation, inflation, or rationing. Apart from this, it would provide a reservoir of demand for consumers goods, to become effective in the postwar period when the cessation of war production would result in a slump. It is this element of the plan which has made it attractive to the exponents of a rational method of war finance. If the Keynes plan were adopted, not the rich would be creditors of the war debt (as they are under conditions of inflation), but the poor, who in normal times are inclined to consume a large proportion of their incomes. If the war would be financed by severe taxation, there would be no backlog of

[22] J. M. Keynes, *How to Pay for the War* (New York, Harcourt Brace and Company, 1940), p. 10.

purchasing power to become effective in the postwar period. In earlier years Mr. Keynes had proposed a wartime policy of price inflation with lagging wages, the inflated profits then to be taxed severely and not lent. His emphasis was then upon preventing the accumulation of the claims to future wealth in the hands of the profit receivers (lenders).[23] Under the new scheme the claims are designed to accrue not to the profit receivers but to the wage earners. The weight of the debt burden upon the postwar community is thus recognized as relative to the characteristics of the creditor group. Debt payments to profit receivers stimulate the rate of saving, while payments to wage earners lift the rate of consumption. Transfers of titles to future wealth to groups whose propensity to consume is high are helpful in an economy normally suffering from underemployment of resources and men.

There is little doubt that the plan is superior to excessive taxation and inflation. The most serious objection to the proposal is related to the fact that it would drain only consumable incomes and would not supply adequate checks on the consumption of the rich, who might liquidate part of their wealth and use it for current consumption. For this reason, rationing schemes were regarded as superior by some experts, since they would bring about the desired reduction of civilian consumption in the most equitable manner. Moreover, the full understanding of the Keynes plan required a degree of insight into the working of the economic system which only relatively few people possess. The spokesmen of the wage earners had to be persuaded to accept an overt reduction of the standard of living, combined with the transfer of claims to future wealth to the wage earners, and to reject a covert reduction under inflation, where claims to future wealth would either be taxed away or left with the profit receivers. Trade union leaders were particularly suspicious of the stabilization of wages and prices proposed in connection with the scheme, and they were desirous of maintaining normal negotiation procedures among the unions and employers. Mr. Ernest Bevin pointed out that "we have the proof that all our finely balanced ne-

[23] J. M. Keynes, *Treatise on Money* (New York, Harcourt Brace and Company, 1930), Vol. 2, pp. 170–74.

gotiating machinery is standing the test of wartime conditions. Then we get professors without experience or understanding of the reactions likely to be produced by their advice seeking to promote fancy schemes. Their schemes are likely to jolt the industrial machine, endanger production, and result in serious disturbances and strikes at a critical moment." [24]

The fact that the plan was connected with a proposed capital levy after the war added to the difficulties which it had to encounter. In view of the traditional hostility of the British Conservative Party to a levy upon capital, workers were inclined to regard the liquidation of the deferred payments after the war as more or less uncertain, considering them as a tax on wages rather than as savings. After one and a half years of discussion, elements of the Keynes plan were finally incorporated in the British budget for the fiscal year 1941–42.[25]

The Keynes plan was widely discussed in the United States and appraisals were made of its relevance to the finance of the American defense program. During the initial stages of the program the margin of idle resources and men was still so wide that restriction of civilian consumption was neither necessary nor desirable. This had been the view of Mr. Keynes himself in July, 1940.[26] In May, 1941, he seemed to favor the application of his plan in the United States.[27] At that time full employment was no longer a remote prospect, and the problems connected with the execution of the negative effort of war had become more urgent. Sometime ago, Mr. Jerome Frank, then chairman of the Securities and Exchange Commission, presented for purposes of illustration the following hypothetical example of an adoption of the Keynes plan in the United States:

> Let us assume that we would start with an average rate of contribution of 2 percent for family incomes of $1,000 to $1,500, *i.e.*, a tax of $25 per average family in this bracket (the actual rate would have to be higher than the average for small families and single individuals and lower for large families). This rate might be further raised to

[24] Address at St. Austell, Cornwall. (London) *Daily Herald*, March 29, 1940.

[25] See below, p. 342.

[26] J. M. Keynes, "The United States and the Keynes Plan," *New Republic* 103: 156–59 (July 29, 1940).

[27] New York *Times*, May 10, 1941.

about 25 percent for the average family with an income of $5,000 to $10,000 and to about 75 percent for those with incomes of over $100,000.

Such rates might, as a rough estimate, produce more than $10,000,000,000 whenever the national income is around $80,000,000,000, about enough, together with excise and excess profits taxes, to supply most of the amount needed for additional armament expenditure, taking into consideration the probable decline in relief expenditures of the government.

If we treat between 75 percent and 50 percent of the total contribution as deferred tax credit (repayable after the war) for incomes below $5,000, reducing the ratio gradually about 10 percent for the highest incomes, we would in this way levy a forced loan of only about $5,000,000,000 per year.

The plan's advantages were outlined as follows:

First, it would compensate, in part at least, the poorer classes for their wartime sacrifices by a future additional income, and would provide them with a small capital after the war is over—probably more than the average family's present equity in industrial insurance.

Secondly, it would provide an anti-deflationary source of purchasing power available after the termination of the war, through the redemption in installments of the tax certificates.

Thirdly, it would increase the ratio of savings to income, where it is now very low, and—what may perhaps be an advantage partly from the economic and partly from the social point of view—decrease it where it is high.

Finally, such a scheme would, desirably, avoid or at least reduce the rise in the rate of interest and, in particular, the rate on Treasury securities, which would occur if the war were financed mainly through open-market Treasury issues.[28]

During 1941, adoption in one form or the other of the Keynes plan in the United States was urged by numerous persons, including Mr. William Green of the A. F. of L.,[29] Dr. William T. Foster,[30] Mr.

[28] Lecture before the Army Industrial College, April 8, 1940.
[29] Testimony before the House Committee Investigating Migratory Labor, 77th Cong., 1st Sess., July 15, 1941.
[30] Address before the National Association of Mutual Savings Banks, Philadelphia, May 8, 1941.

Leon Fraser,[31] and Dr. Robert P. Brecht, of the University of Pennsylvania.[32] The proposals of the latter were of a nature that should have made them acceptable to the Treasury, which seemed to favor an increase in social security taxes with corresponding increases in benefits during the post-emergency period rather than the more spectacular adoption of "compulsory savings." Dr. Brecht's plan was composed of two parts, a payroll tax to accumulate a dismissal wage for distribution in a lump sum to employees after the emergency, and/or legislation that would make overtime compensation and salary increases above those needed for changes in the cost of living payable in non-negotiable government bonds. These bonds might be made due in ten years, but with the provision that they could be retired at any time prior to their terminal date.

*War loans.*—A characteristic phenomenon of war finance during the present conflict has been the low rate of interest at which bank credit has been available to the various governments. Since 1939, the English bank rate has been reduced from 4 to 2 percent, that of France from 2 to 1¾ percent, and that of Germany from 4 to 3½ percent. The Japanese discount rate and that of the Federal Reserve Bank of New York remained unchanged at 3.29 and 1 percent, respectively. Interest on the public debt absorbs less than 10 percent of tax revenues in Germany, about 10 percent in the United States and about 15 percent in England. Upon the basis of a national income of $100,000,000,000, interest payments on the public debt of the United States would absorb approximately 1.3 percent of the national income during the fiscal year 1942. When the government spends money which has been borrowed from the banks, "the immediate expansionary effect is the same as that created through paper money issues, but bank financing is a less obvious type of expansionary financing to most people and so is not subject to the distrust that accompanies the creation of 'fiat' money." [33] For this reason and

[31] Address before the New York State Bankers Association, Glenn Falls, June 20, 1941.

[32] Address before the American Management Association, New York City, October 22, 1941.

[33] Hart and Allen, *op. cit.*, pp. 14–15.

in view of the cheapness of bank credit there are only a few who advocate the issuance of new money by the government instead of having the latter borrow from the banks.[34] Interest could be saved if the government were to finance its defense outlays through an issue of noninterest-bearing government warrants, with proper safeguards against inflation. It has been proposed to issue such warrants, which would be negotiable only through banks, and eligible as reserve for Federal Reserve member banks. Reserve requirements, it was pointed out, could be raised enough to take up excess reserves created by these warrants.[35]

On the whole, however, there is rather a tendency to overrate the proper role of central bank policies in the war economy and to vest the monetary authorities with functions which they are either unable to fulfill or whose purposes can be much better accomplished by direct controls. This tendency has been especially predominant in the United States. The Federal Reserve authorities admitted that inflation cannot be controlled by monetary measures alone, but proposed, at the same time, a number of measures which would, in effect, create an artificial scarcity of bank credit and increase the cost of public borrowing.[36] These measures included an increase in reserve requirements, repeal of the President's power to raise the price of an ounce of gold from $35 to $41.34 by reducing the gold content of the dollar, repeal of the President's power to issue $3,000,000,000 worth of greenbacks, repeal of the Treasury's power to monetize foreign silver, neutralization of the credit effects of gold imports, sale of government securities to individuals, and a gradual increase in tax receipts to make them equal to spending once full utilization of the country's economic capacity was attained. As mentioned before, most of these proposals were designed to create an artificial scarcity

[34] See, for example, radio address of Representative Wright Patman, reprinted in *Congressional Record*, March 17, 1941, to which a reply was made by the chairman of the Board of Governors of the Federal Reserve System, New York *Times*, March 25, 1941.

[35] Albert Gailord Hart, *Economic Policy for Rearmament* (Public Policy Pamphlet No. 33, Chicago, University of Chicago Press, 1940), p. 28.

[36] Board of Governors of the Federal Reserve System, Presidents of the Federal Reserve Banks, and Federal Advisory Council, "Special Report to the Congress," *Federal Reserve Bulletin*, January, 1941, pp. 1–2.

of bank credit and raise interest rates. Though the proposals met severe criticism,[37] reserve requirements were actually increased in September, 1941. This measure reduced the volume of credit which the member banks of the Federal Reserve System were authorized to create, and was regarded as likely to be followed by a tightening of money rates. To the extent to which the credit facilities of the member banks were utilized for financing defense production, "they obviously must be considered desirable, and no steps should be taken to contract them." [38] If priorities and control over new investment are handled properly, the use of credit facilities for other than defense purposes is kept within the appropriate limits and it is not necessary to restrict the potential volume of credit. Loans which are used for financing the sale of durable consumers goods "are bound to decrease as the supply of such goods is reduced," as installment sales are restricted and prices controlled. "Raising of reserve requirements would not in any way reduce the amount of deposits owned by individuals, firms or corporations. Neither would it curtail the demand for commodities nor increase the supply of consumption goods, nor reduce the deficit of the government." Moreover, if interest rates are encouraged to rise, this would depress the value of outstanding bonds and increase the cost of servicing the public debt. Experience teaches that it is easier to stimulate an increase than a decrease in interest rates. In the postwar period, high interest rates would be an obstacle to the replacement of war production by industrial expansion in other directions. In the war economy, with the government as principal borrower and industry employed in defense work, it is fallacious to ration credit by means of the interest rate, since more discriminating methods are available which do not result in an increase of the costs of credit for defense and non-defense purposes alike.

Is borrowing from the banks more "inflationary" than borrowing

[37] Seymour E. Harris, *The Economics of American Defense* (New York, W. W. Norton and Company, 1941), pp. 161, 182; cf. also Hart and Allen, *op. cit.*, pp. 54ff.

[38] Address of Dr. Marcus Nadler, of New York University, before the Municipal Forum of New York, September 26, 1941. Subsequent quotations are taken from this address.

from individuals? As has been pointed out above, pp. 127–29, there is no qualitative difference between both types of loans as long as savings of the citizens increase at the same rate as loans from the banks to the government. Apart from this, however, the sale of war bonds directly to the citizens is likely to result in a greater quantity of savings than would be accomplished in the absence of such sales. Even the most vigorous stimulation of the purchase of war bonds by the citizens will, however, leave a wide gap which the government must fill by means of bank loans. Under war conditions, the credit facilities of the banking system tend to be expanded on account of the high level of employment, increase in the wage bill, and low inventories. While these conditions stimulate the flow of funds into bank deposits, the public is neither able nor willing to make use of its increased cash and bank balances. It is not able to do this because of the limited opportunities for consumption and non-essential investment and because of the control over prices, consumption and investment. However, in the absence of direct controls over consumption and investments, cash and bank balances may be used for bidding up the prices of such opportunities for spending and investing as are available. On the other hand, the public's desire to utilize its balances is checked by the uncertainties of the war and the deterrent to normal enterprise which war entails. Since the increment in the volume of means of payment held by the public in the form of cash and bank balances is not, or cannot be spent by the public, and since the government does not get hold of all of it by means of taxation or borrowing from the public, a corresponding expansion of bank credit is necessary to finance the war effort and has in itself no inflationary effects.[39]

It follows from the foregoing discussion that bank credit is "inflationary" under the following conditions. There must be an inelastic supply of consumers goods. The purchasing power created by means of credit must be transferred to groups whose propensity to consume is high. There must be no corresponding reduction in the demand for consumers goods of other parts of the population. The addi-

[39] Cf. the remarkable articles, "The Torrent of Liquidity," *Economist*, April 19, 1941, pp. 529–30; "Bank Credit and Inflation," *ibid.*, June 21, 1941, pp. 817–18.

tionally created purchasing power must not be taxed away, and there must be no checks upon the consumption of those to whom it is transferred. Under these conditions purchasing power created by means of bank credit will be used for bidding up prices.

It is only in part that the rise in the national debt which occurs during wartime represents the absorption of war savings and corresponds to additions to private wealth.[40] Another part of the debt is created to compensate citizens for various kinds of losses incurred during the war. Examples of such losses are requisitions, the taking over of foreign assets, wartime destruction, cessation of maintenance and replacement of capital. To the extent to which the debt has been incurred to compensate for such losses there has been no increase in the net private wealth. Increases in private wealth are increases in taxable capacity. To the extent to which the increase in the debt corresponds to additions to private wealth and taxable capacity, the debt is self-financing. "To the extent that the debt is held by surtax payers, who pay higher rates of taxation than the rate of interest they receive on their debt holdings, the debt pays for itself. Mutatis mutandis, if the debt were not in existence, the same amount of revenue would unfortunately *not* be available for social services or other purposes, since the deflated incomes would bear a more than proportionately lower burden of surtax." [41]

In view of these considerations it is sensible to say that "the prospect of a debt of the order of $150,000,000,000 should not frighten us." [42] In discussions of the national debt it is often neglected that all debts which are owed within the nation are liabilities as well as assets and are canceled out when the totals are added up. The national debt "is a debt owed by one section to another section; the interest which has to be paid upon it is simply transferred within the community, from one group of the community (the taxpayers) to another group (the bondholders), groups which partly but not wholly overlap." [43] To the extent that the debt is held by low-income groups with a high propensity to consume, repayment will be helpful in taking up the

[40] Hicks, Hicks, and Rostas, *op. cit.*, pp. 25–26.
[41] Ursula K. Hicks, *Economic Journal* 51: 300 (1941).
[42] Harris, *op. cit.*, p. 316.
[43] Hicks, Hicks, and Rostas, *op. cit.*, p. 20.

slack in demand following upon the cessation of wartime spending. The amount of taxation required for servicing the debt will be dependent upon the continuation of cheap-money policies and the degree to which postwar deflation is prevented and the price level maintained.[44]

## Financing the Second World War

*Germany*.—German fiscal policies were upon a war basis long before the outbreak of hostilities in 1939. During the period from 1933 to 1941 combined annual borrowings and taxes rose from 7,000,000,000 marks, or 15 percent of the national income of 50,000,000,000 marks, to 72,000,000,000 marks, 72 percent of the national income of approximately 100,000,000,000 marks. As these figures indicate, the national income and public disbursements had risen constantly; the former was 72,600,000,000 marks in 1937, 79,700,000,000 marks for Germany proper and 88,000,000,000 marks for Greater Germany (including Austria) in 1938, 95–98,000,000,000 marks for Greater Germany including newly incorporated territory in 1939, and 98,000,000,000 to 105,000,000,000 marks in 1940.[45] No budget estimates have been made public since 1933, and the official figures for revenue and borrowing do not indicate the exact territory to which they apply. The total disclosed indebtedness of the Reich rose from 37,405,000,000 marks at the beginning of the war to 101,060,000,000 marks on June 30, 1941.[46] Until 1938, the ratio of current borrowing to tax receipts was in the neighborhood of 2 to 8. Starting early in 1938, borrowings increased at a much faster rate than taxes. In the first half of 1941, borrowings contributed 61 percent of disclosed expenditures. Since controls were applied with severe strength, prices did not soar under the influence of heavy borrowing, increase in in-

[44] See the interesting articles on "The Future Debt Burden," *Economist*, August 16 and 23, 1941, pp. 192–94, 222–23.

[45] "Germany's War Finance," *Economist*, August 23, 1941, pp. 229–30. See also K. Mandelbaum, "Germany's Wage Bill and National Income in the First Year of the War," Institute of Statistics, Oxford, *Bulletin* 3: 223–25 (1941); H. Arnold Quirin, "German War Finance," *Foreign Commerce Weekly* 2: 387–89 (1941).

[46] New York *Times*, September 8, 1941.

comes and decline in the volume of consumers goods available to the civilian population.[47]

The war effort of the Nazis is fostered by various forms of "scientific looting" to which the occupied countries are subjected.[48] In terms of prewar pounds of $4.70, cash exactions from these countries were estimated as £1,150,000,000 per year in March, 1941. This sum includes payments exacted for the upkeep of the occupying troops but is sufficiently large to "pay" for the shipment of goods to Germany and the acquisition of industrial enterprises in the occupied territories. The sum does not include the value of the loot which the Germans get hold of by means of other devices (see above, pp. 308–11). The annual occupation payments of the various countries were as follows: France, £827,000,000; Belgium, £75,000,000; Norway, £68,000,000; Netherlands, £54,000,000; Denmark, £26,000,000. No figures were available for Poland, Rumania, Bulgaria, Czechoslovakia. Calculated per head of the population, the Norwegian figures seem to be the highest, amounting to £25.[49] The French contributions were reduced in 1941 to at first 400,000,000 francs a day and to 300,000,000 francs in August, 1941. Of this amount, about 125,000,000 francs are actually required for the cost of the occupying army.

*England.*—A policy of vigorous spending for defense was not started in England until the resignation of Sir John Simon as Chancellor of the Exchequer in May, 1940. During 1940, daily expenditures increased from £5,000,000 to £12,000,000. In 1941 they were maintained on approximately the same level, varying between £11,000,000, and £13,000,000. These figures do not include lease-lend aid received from the United States. The maintenance of the level attained in 1940 would thus indicate an increase of the amount of real production for war, were it not for the fact that prices have increased. The extent to which both these factors offset one another cannot be accurately ascertained. Total expenditures during the first two years of the war were £7,018,000,000, of which £5,668,000,000

[47] See above, pp. 139–40.
[48] See above, pp. 308–11.
[49] London *Times*, March 20, 1941.

was for war services. Of this cost, £2,785,000,000 (40 percent) had been paid out of current revenues.[50]

In spite of increasing taxes the rising expenditures were met by a constantly increasing proportion of borrowings. In April, 1940, it was intended to levy one-half of expenditures by taxation. The July budget for the rest of the fiscal year ending March 31, 1941 reduced the proportion to one-third, but as the year went by, taxes sufficed only for the payment of about one-fourth of expenditures. The budget for the fiscal year 1942 provided for taxes sufficient to pay for approximately four-tenths of expenditures, but there was much likelihood that actual expenditures would be in excess of the budget estimates.

The changes in the tax system which were made in 1940 included increases in income, inheritance, excess profits, and excise taxes, and a sales tax. The most spectacular novation was the sales tax and the increase in excess profits tax rates to 100 percent. In 1941 it was considered to introduce land taxes, levies upon capital, a tax upon service expenditures, and a direct tax at a flat rate on the small and middle incomes. None of these changes were actually carried out. While the budget for 1941–42 did not provide for a new flat rate on incomes, it reduced exemptions and personal allowances and increased the rates of the income tax. The Keynes scheme was adopted in part by providing for the return during the postwar period, in the form of a credit with the P.O. Savings Bank, of the increment in income tax due to lowered exemptions and personal allowances, up to a maximum of £65 per taxpayer. Similar return payments were provided for one-fifth of the excess profits tax. The *Economist* then spoke of "the excellence of an innovation which will be generally accepted in 1941 as an incident of tax collection, although it was rejected in 1940 when described either as 'compulsory saving' or as 'deferred pay.'" [51] The returnable annual amount of income taxes was estimated at £125,000,000, that of excess profits taxes at £35,000,000.

The new standard rate (which, however, does not apply to the lower brackets) was raised to 10 s. in the £, *i.e.*, 50 percent. This

[50] New York *Times*, October 2, 1941.
[51] "The First War Budget," *Economist*, April 12, 1941, pp. 475–76.

compared with a maximum rate during the World War of 1914–18 of 5 s. The proportion of earned income absorbed by the tax in the lower brackets is considerably smaller.

The proportion of direct and indirect taxes is indicated in the following table.

TABLE 71.—PROPORTION OF INDIRECT AND DIRECT TAXES, IN PERCENT OF TOTAL TAX REVENUE, GREAT BRITAIN, 1938–39 TO 1941–42 *

| | *Direct taxes* [a] | *Indirect taxes* [b] |
|---|---|---|
| 1938–39 | 56 | 44 |
| 1939–40 | 56 | 44 |
| 1940–41 | 57 | 43 |
| 1941–42 | 64 | 36 |

* *Economist*, April 5, 1941, p. 438; April 12, 1941, p. 476.

[a] Income, surtax, estate duty, excess profits tax, national defense contribution, other inland revenue.

[b] Customs, excise, stamps, motor vehicle duties.

There has thus occurred a considerable increase in the relative importance of direct taxes, largely on account of the increase in income tax rates and the decrease in exemptions.

Total government expenditure during the financial year ending March 31, 1941, was £3,867,245,670. Total ordinary revenue was £1,408,867,097, leaving a deficit of £2,458,378,573. During the financial year 1941–42 expenditures will amount to £4,207,000,000,[52] with revenues totaling £1,786,360,000 and an anticipated deficit of £2,421,000,000. There is, of course, the possibility that actual expenditures will be in excess of the budget estimates. The national debt, which was £8,163,200,000 on March 31, 1939, had risen to £11,400,000,000 on March 31, 1941, and was expected to increase to £14,000,000,000 during the financial year 1941–42. A considerable proportion of the new borrowings had absorbed loans from small savers. These amounted to £1,000,000,000 during the period from

[52] Excluding returns for the acquisition of goods under lease-lend aid and payments for orders placed in the United States.

November, 1939 to October, 1941, compared with £247,000,000 between 1916 and 1919. On a per-capita basis, these loans represented over £20 from each Englishman, compared with £6 4 s. during the World War of 1914–18.[53] However, it goes without saying that the floating debt increased at a fast rate. At the outbreak of the war, the floating debt had been £1,167,500,000. During the financial year 1941 it had risen to £2,813,410,000. During the first six months of the current financial year it continued to increase to £3,424,430,000. Nearly one-half of the increase in the floating debt is, however, represented by the utilization of capital assets belonging to the state (for example, assets of the exchange equalization account) and of the income of the unemployment insurance fund, the War Damage Commission, etc. The Treasury, by borrowing from these funds, issues Treasury bills which cause the floating debt to increase, though the revenues which are obtained in this manner resemble tax revenues rather than borrowings.

Public expenditures absorb about one-half of the national income. Before the war, the latter was estimated at £6,000,000,000. Though it may now be in the neighborhood of £9,000,000,000, a good deal of the increase is purely nominal since it reflects the influence of higher prices.[54]

*United States.*—Military expenditures of the United States for the fiscal years 1914 to 1943 are listed in Table 72, p. 345.

During the fiscal year 1941, monthly defense expenditures increased from $177,000,000 in July, 1940, to $994,200,000 in June, 1941. During the fiscal year 1942, defense expenditures continued to rise and approached $1,900,000,000 in December, 1941. The defense program from June, 1940 to December, 1941 contained authorizations and appropriations in excess of $75,000,000,000. Actual payments made by December 1, 1941, amounted to $13,299,000,000, and contract awards to $47,726,000,000.

Apart from defense expenditures amounting to $6,047,000,000 in the fiscal year 1941, other governmental disbursements required $6,662,000,000. Some of these were of considerable military importance.

[53] New York *Times*, October 7, 1941.
[54] See above, p. 141.

TABLE 72.—MILITARY EXPENDITURES, UNITED STATES,* 1914 TO 1943 *

| | | | |
|---|---|---|---|
| 1914 | $253,000,000 | 1929 | $678,000,000 |
| 1915 | 257,000,000 | 1930 | 701,000,000 |
| 1916 | 277,000,000 | 1931 | 677,000,000 |
| 1917 | 658,000,000 | 1932 | 664,000,000 |
| 1918 | 7,014,000,000 | 1933 | 633,000,000 |
| 1919 | 11,217,000,000 | 1934 | 494,000,000 |
| 1920 | 1,657,000,000 | 1935 | 663,000,000 |
| 1921 | 1,070,000,000 | 1936 | 880,000,000 |
| 1922 | 794,000,000 | 1937 | 895,000,000 |
| 1923 | 596,000,000 | 1938 | 980,000,000 |
| 1924 | 573,000,000 | 1939 | 1,056,000,000 |
| 1925 | 589,000,000 | 1940 | 1,558,000,000 |
| 1926 | 580,000,000 | 1941 | 6,047,000,000 |
| 1927 | 584,000,000 | 1942 [a] | 23,996,000,000 |
| 1928 | 624,000,000 | 1943 [a] | 52,786,000,000 |

* Treasury Department. New York *Times*, September 7, 1940; July 2, 1941; January 8, 1942.

[a] Estimate as of January 7, 1942.

Total government expenditures in 1940–41 were thus $12,710,000,000, compared with net federal revenues of $7,607,000,000. In 1941–42, total expenditures were estimated at $30,575,000,000 (as of January 7, 1942), with net federal revenues amounting to $11,943,000,000. There was thus a deficit of $5,103,000,000 in 1940–41 and of an estimated $18,631,000,000 in 1941–42. Budget estimates for 1942–43 provided for total expenditures of $58,928,000,000,with net revenues of $23,487,000,000 and a deficit of $35,441,000,000. The federal debt, which had been approximately $40,000,000,000 on June 30, 1939, was in the neighborhood of $50,000,000,000 in the fall of 1941, and was expected to continue to increase. The increase in revenues had been the result of the increase in the national income with its concomitant stimulation of the productivity of the various taxes, and of changes in the tax system. Revenue legislation in 1940 provided for an excess profits tax, increases in the rates of various excise taxes, decrease in individual income tax exemptions, and increases in the rates of individual and corporation income taxes. Revenue legislation

in 1941 moved along the same lines. The following is a more detailed survey of the development of the excess profits and individual income tax.

Corporations subject to the excess profits tax were required to pay the following rates on "adjusted excess profits net income:"

| *Adjusted excess profits net income* | *Rate, percent* | |
|---|---|---|
| | *1940* | *1941* |
| Not over $20,000 | 25 | 35 |
| Over 20,000 to 50,000 | 30 | 40 |
| Over 50,000 to 100,000 | 35 | 45 |
| Over 100,000 to 250,000 | 40 | 50 |
| Over 250,000 to 500,000 | 45 | 55 |
| Over 500,000 | 50 | 60 |

Adjusted excess profits net income is excess profits net income minus an exemption of $5,000. Excess profits net income can be calculated by either one of two methods, the invested capital basis or the average earnings basis. If the former is used, excess profits net income is income in excess of

8 percent of the invested capital (1940)
8 percent of the invested capital not over $5,000,000 (1941)
7 percent of the invested capital over $5,0000,000 (1941)

If the average earnings basis is chosen, excess profits net income is profit in excess of 95 percent of the average net income from 1936 to 1939. The opportunity of using the average earnings basis enabled many corporations, which between 1936 and 1939 had earned average profits far in excess of a reasonable normal return, to avoid payment of the tax.

While the normal tax rate of the personal income tax was maintained at 4 percent, surtax rates were increased sharply and exemptions lowered. Personal exemptions for a single person were $1,000 in 1939, $800 in 1940, and $750 in 1941; for a married person, $2,500 in 1939, $2,000 in 1940, and $1,500 in 1941. Exemption for each dependent remained at $400. The increases in the surtax rates enacted in 1940 were of effect only upon net incomes from $6,000 to $100,000.

Those enacted in 1941 started with a surtax of 6 percent on the first $2,000 of taxable net income. The sharp increase is illustrated in the following table.

TABLE 73.—PERSONAL INCOME SURTAXES UNDER THE TAX LAWS OF 1939, 1940, AND 1941

| *Net income, dollars* | *Surtax rate, percent* [a] | | | *Surtax on higher amount, dollars* | | |
|---|---|---|---|---|---|---|
| | *1939* | *1940* | *1941* | *1939* | *1940* | *1941* |
| 0 to 2,000 | .. | .. | 6 | .. | .. | 120 |
| 2,000 to 4,000 | .. | .. | 9 | .. | .. | 300 |
| 4,000 to 6,000 | 4 | 4 | 13 | 80 | 80 | 560 |
| 6,000 to 8,000 | 5 | 6 | 17 | 180 | 200 | 900 |
| 8,000 to 10,000 | 6 | 8 | 21 | 300 | 360 | 1,320 |
| 10,000 to 12,000 | 7 | 10 | 25 | 440 | 560 | 1,820 |
| 12,000 to 14,000 | 8 | 12 | 29 | 600 | 800 | 2,400 |
| 14,000 to 16,000 | 9 | 15 | 32 | 780 | 1,100 | 3,040 |
| 16,000 to 18,000 | 11 | 18 | 35 | 1,000 | 1,460 | 3,740 |
| 18,000 to 20,000 | 13 | 21 | 38 | 1,260 | 1,880 | 4,500 |
| 20,000 to 22,000 | 15 | 24 | 41 | 1,560 | 2,360 | 5,320 |
| 22,000 to 26,000 | 17 | 27 | 44 | 2,240 | 3,440 | 7,080 |
| 26,000 to 32,000 | 19 | 30 | 47 | 3,380 | 5,240 | 9,900 |
| 32,000 to 38,000 | 21 | 33 | 50 | 4,640 | 7,220 | 12,900 |
| 38,000 to 44,000 | 24 | 36 | 53 | 6,080 | 9,380 | 16,080 |
| 44,000 to 50,000 | 27 | 40 | 55 | 7,700 | 11,780 | 19,380 |
| 50,000 to 60,000 | 31–35 | 44 | 57 | 10,960 | 16,180 | 25,080 |
| 60,000 to 70,000 | 35–43 | 47 | 59 | 14,860 | 20,880 | 30,980 |
| 70,000 to 80,000 | 43–47 | 50 | 61 | 19,400 | 25,880 | 37,080 |
| 80,000 to 90,000 | 51 | 53 | 63 | 24,500 | 31,180 | 43,380 |
| 90,000 to 100,000 | 55 | 56 | 64 | 30,000 | 36,780 | 49,780 |
| 100,000 to 150,000 | 58 | 58 | 65 | 59,000 | 65,780 | 82,280 |
| 150,000 to 200,000 | 60 | 60 | 66 | 89,000 | 95,780 | 115,280 |
| 200,000 to 250,000 | 62 | 62 | 67 | 120,000 | 126,780 | 148,780 |
| 250,000 to 300,000 | 64 | 64 | 69 | 152,000 | 158,780 | 183,280 |
| 300,000 to 400,000 | 66 | 66 | 71 | 218,000 | 224,780 | 254,280 |
| 400,000 to 500,000 | 68 | 68 | 72 | 286,000 | 292,780 | 326,280 |
| 500,000 to 750,000 | 70 | 70 | 73 | 461,000 | 467,780 | 508,780 |
| 750,000 to 1,000,000 | 72 | 72 | 74 | 641,000 | 647,780 | 693,780 |
| 1,000,000 to 2,000,000 | 73 | 73 | 75 | 1,371,000 | 1,377,780 | 1,443,780 |
| 2,000,000 to 5,000,000 | 74 | 74 | 76 | 3,591,000 | 3,597,780 | 3,723,780 |
| Over 5,000,000 | 75 | 75 | 77 | .. | .. | .. |

[a] Surtaxes are in addition to the normal tax of 4 percent on all income brackets.

Future tax policies may include a general sales tax and stepping up of estate, excise, excess profits, income, and social security taxes. If income taxes should be increased farther, it is most likely that this would be done in conjunction with the adoption of elements of the Keynes plan. Increases in social security taxes in combination with the creation of funds for dismissal wages would have similar effects. Estate and excess profits taxes would be productive of considerable amounts of revenue, while the other taxes would, apart from this, check civilian consumption and inflation.

Apart from its tax policy, the Treasury stimulated savings by a vigorous campaign designed to encourage the purchase by the public

of new types of securities. The latter included savings bonds of low denominations, which resemble the familiar baby bonds, and postal savings stamps in denominations as low as 10 cents, 25 cents, 50 cents, $1, and $5. These stamps bear no interest and are accumulated until they suffice for the purchase of a savings bond. The latter, which are redeemable at any time upon reasonable notice, carry a yield varying from 2½ to 2.9 percent for the different types. These rates are not far in excess of the interest yielded by regular government bonds, and it is to be hoped that the Treasury will resist all efforts to have them stepped up. All newly issued government securities are now fully taxable by the federal government.

The savings bonds are not transferable and thus cannot be used as collateral for an extension of credit. Eight months after the beginning of the program on May 1, 1941, a total of $2,537,200,000 of defense bonds had been sold.

The Treasury also turned to the issuance of tax anticipation notes on August 1, 1941. These notes were designed to increase the effectiveness of the income tax as a check upon current purchasing power. This was to be accomplished by absorbing incomes after they had accrued and preventing the spending of the proportion of income to be paid as income tax during the lengthy interval between earning income and paying taxes on it. When tax anticipation notes are presented by the taxpayer in payment of income taxes, he receives credit for their par value plus interest ranging from .48 to 1.92 percent a year. The higher return is provided for notes acquired by small taxpayers, while notes carrying the lower rate are for large corporate taxpayers. The low rate was still far in excess of the return which such taxpayers could obtain by the temporary acquisition of Treasury bills. Consequently, large amounts of these notes were sold, totaling $1,037,000,000 during the first month of sale.

As mentioned before (above, p. 337), the reserve requirements of the member banks of the Federal Reserve System were increased, the measure to take effect on November 1, 1941. The merits of this step are discussed above. The action of the reserve authorities increased reserve requirements by one-seventh, thereby reducing excess reserves to $4,000,000,000. This amount was still sufficient for a further

expansion of credit in excess of $20,000,000,000. Present and previous reserve requirements are compared in the following table.

TABLE 74.—MEMBER BANK RESERVE REQUIREMENTS, IN PERCENT OF DEPOSITS, 1938, 1941

| *Classes of deposits and banks* | *Requirements* | |
|---|---|---|
| | *April 16, 1938, to October 31, 1941* | *Effective November 1, 1941* |
| Net demand deposits: | | |
| Central reserve city banks | 22¾ | 26 |
| Reserve city banks | 17½ | 20 |
| Country banks | 12 | 14 |
| Time deposits: | | |
| All member banks | 5 | 6 |

# CHAPTER XII

# THE AFTERMATH OF WAR

The following survey of economic conditions in the postwar world is limited to a discussion of the general economic pattern which has prevailed subsequent to previous wars and of such specific factors which are likely to operate after the conclusion of the present conflict. It is beyond the scope of economic science to go any farther. Economic science, however, has advanced far enough to supply an outline of rational public policies designed to cope with the postwar problems. It goes without saying that there is no certainty that the policy-makers will be wise enough to apply these policies. The economist is unable to make predictions pertaining to the policies which will actually be applied, but he can show the consequences of alternative programs of readjustment. As the following discussion will show, a do-nothing policy would be about the worst that could happen. A postwar depression is in no way inevitable and can be prevented or minimized by adequate measures.

## The Pattern of Postwar Depression

Experience indicates that, in the absence of proper policies, the peak of the war boom does not occur during the war period but shortly after the cessation of hostilities. It is during that time that prices attain their highest level and that the danger of inflation is greatest. At first glance, this may seem rather peculiar. It is, however, "not hard to see how this comes about. War expenditure does not stop abruptly; it hangs over after peace is declared, and dies down gradually. Meanwhile, all the private and business expenditure which was postponed during wartime will wait no longer. Stocks which were allowed to run down will need replenishing; machinery which is worn out will need renewing; war damage will need to be made

good; clothes will need renewing, houses redecorating, and so on. It is important to realize that the saving which takes place in wartime is largely postponement of expenditure, not permanent saving. The danger-point of inflation is when that postponement comes to an end. For these reasons the end of a great war is likely to be followed by an expansion of public and private expenditures taken together." [1]

For the period immediately following upon the war it is therefore of foremost importance to postpone large-scale spending on the part of businesses and individuals until military expenditures have more fully abated. Private and business spending must not be added to military expenditures but must gradually replace them. If the private and business expenditure is added to military expenditures, the volume of real production and employment resulting from the former can be only relatively small. Hence, prices rise, and private and business purchasing power is lost without taking its full effect. This is particularly undesirable because the backlog of private and business purchasing power, which has been stored up during the war, is needed for the maintenance of employment and production once spending for military purposes has ceased.

Timing and synchronization of restrictive and expansive policies is therefore of paramount importance. The checks upon consumption and investment must be relaxed with great caution step by step in accordance with the cessation of war demand. The greatest reserve is necessary with respect to the elimination of direct controls and the relaxation of consumption taxes, since these measures are of immediate effect. No new checks should be imposed which would restrict private and business spending in the more distant future. It would, for example, not be desirable to step up interest rates, and if the direct controls are left operating for a sufficient length of time, this would not be necessary. On the other hand, changes in the tax system should be well prepared, to be applied at once when military expenditures cease, and such taxes whose effects lag behind their enactment should be modified at once. In the longer run, the tax system must be made more progressive in order to stimulate the rate

[1] J. R. Hicks, U. K. Hicks, and L. Rostas, *The Taxation of War Wealth* (Oxford, Clarendon Press, 1941), p. 17. By permission of the publishers.

of consumption, while wartime taxation tended to stimulate the rate of saving.[2] The flexibility of the tax system, which is required for the adjustment of the war economy to postwar conditions, confronts the tax authorities with difficult problems, particularly in the United States. Proper flexibility and timing cannot be attained without integration of the tax policies of the municipalities, states, and the nation.

Unless proper measures are taken, the cessation of pent-up spending by businesses and individuals may coincide with the cessation of spending for military purposes. It goes without saying that this would have devastating effects upon employment and production. In the United States, for example, 23,000,000 persons are anticipated to be at work in war industries by 1944, with an additional 3,500,000 enrolled in the armed forces.[3] These estimates were prepared before the United States entered the war as a belligerent.

Cessation of government expenditures for defense results in a drastic curtailment of production and employment in defense industries as well as in industries producing civilian consumers goods. The latter are affected because the decline in the incomes in the defense industries is followed by an additional decline in the incomes in the non-defense industries. The operation of the multiplier,[4] which during the initial stages of the defense effort had given rise to an increase in real incomes over and above the initial increment in armament production, now leads to a decrease in real incomes in excess of the initial decline in the production of defense material. The decline in demand and purchasing power exerts a depressive influence upon prices. Instead of the inflationary tendencies inherent in the war and immediate postwar economy, the downward multiplier sets powerful forces in motion which make for deflation.

In some cases, the disproportionate stimulation, to which specific lines of industries have been exposed under the influence of the war effort, requires adjustments which go beyond a mere diversion from

[2] See above, p. 327.

[3] National Resources Planning Board, *After Defense—What?* (Washington, Government Printing Office, 1941).

[4] See above, p. 80.

wartime to peacetime production. The disproportion may give rise to excess capacities of highly specialized types of capital which are of no use in peacetime. In cases where the degree of specialization is less advanced, as, for example, in the steel industry, the absorption of capacities created under wartime conditons is not as severe a problem as in such industries which do not meet a peacetime demand on any level of the national income. However, in these industries private firms are protected by various arrangements securing the swift amortization of newly created productive capacity.[5] While the individual enterprise is thus protected against the adverse consequences of the cessation of war demand, workers who are employed by such enterprises lack similar protection. The diminution of their spending, in turn, has adverse effects upon employment and production in industries serving civilian needs. If they are granted a dismissal wage or protected by an extension of social security legislation, this will foster the maintenance of employment and production in the secondary industries until such time as the displaced workers are absorbed in other occupations.

Happily enough, not all plant capacity created during the war is of such nature that there is no use for it during the postwar period. As is well known, the consumption of various basic materials varies with the national income. On a high level of the national income, many capacities created during the war can be absorbed by the production of civilian consumers goods. It is, therefore, evident that policies designed to cope with the general postwar depression and to maintain the national income are also effectful in coping with the adverse effects of the special industrial disproportions which have arisen on account of the cessation of demand for military purposes.

It goes without saying that a postwar depression, while it is avoidable, requires vigorous action. On the other hand, there is the danger that apprehension, fear and exaggerated attention paid to the economic consequences of war may exert a paralyzing influence upon the war effort itself. It is well to point out that countries which do not make proper provisions for protecting their independence and

[5] See above, pp. 118–21.

integrity for fear of losing their wealth will lose their independence and wealth as well.[6] Moreover, the atmosphere of uncertainty and the discouraging spirit created by such exaggerated fears is bound to foster the depressive factors which are at work after the war and accentuate the cumulative deflationary tendency. Though it has rightly been pointed out that the war does not solve any of the secular problems of our economic organization, there is no reason why the high level of economic activity attained during the war should not be maintained during the postwar period. The cessation of hostilities calls powerful forces into existence which may stem the tide of deflation and unemployment. If these forces are not permitted to spend their strength while military production is still in progress, they will be helpful in maintaining a high level of peacetime production.

## Factors Likely to Operate after the Conclusion of the Present Conflict

In appraising the post-defense outlook, account must be taken of the absence of adverse factors which have operated during previous postwar depressions, and of the presence of favorable factors absent in the past. With respect to adverse factors which have operated in the past, there is much likelihood that superior statemanship will prevent the rise of an international war debt of large size. Indebtedness of this type is bound to hamper efforts designed to cope with the postwar situation. If, for example, the United States would acquire a large foreign war debt, she would have to receive payment in goods, services, or gold, the latter being a claim to goods and services. The distribution of gold among the various countries already is so disproportionate as to hamper its continued use as international means of payment, and the importation of large amounts of goods into the United States would arouse the vehement opposition of domestic producers and aggravate the adjustment problems of the postwar period.[7] Moreover, there is much likelihood that the international situation during the postwar period will encourage lending on the part of the United States, while the rest of the world will be in no position to

[6] See above, p. 323.
[7] See above, pp. 302ff.

start at once with large exports to pay for their foreign war debts.

The presence of other factors which are likely to operate after the conclusion of the present war will exert a powerful stimulus to private and public investment activities. Investment opportunities will be ample and remunerative since huge amounts of capital have melted away under the influence of the war and the cessation of proper maintenance and replacement. There is the gigantic task of rebuilding the cities which have been devastated by the fury of war. There is the need for replacing plant and machinery worn out under the strain of wartime production. There is the need for a vast program of public housing to take up the slack in building activity during the war years and to make good the omissions during the prewar era. It has been pointed out with respect to the United States, that "without a well-planned and a well-executed postwar program, obsolescence will break down to deterioration of catastrophic proportions. By 1945 one-third of all the 40,000,000 dwellings in the country will be more than fifty years old—past the accepted age of efficient usefulness. By 1945 the 6,000,000 dwelling units which were in need of major repairs in 1935 will probably be unfit for use. By 1945 the ten billion dollars' worth of commercial construction undertaken during the boom years of the 1920s will be about twenty years old, and ready for discard, according to the 'actuarial' tables of the Treasury Department for tax amortization purposes. By 1950 the billion and a half dollars' worth of highways built in the peak year of 1930 will demand millions of dollars' worth of reconstruction. Paradoxically, the immense and inevitable postwar problem constitutes a prime opportunity to utilize expanded industry, no longer needed for national defense, in rebuilding and reorganizing the nation." [8]

The huge demand for capital in the countries which have been exposed to the fury of war will facilitate the exportation of goods from those countries where the cessation of military production may otherwise result in widespread unemployment and declining national income. Moreover, "a new frontier for industrial expansion, based on a rise of the sub-human Asiatic standard of living, can lie open to

[8] Columbia University, *Report* of the Dean of the School of Architecture for the Academic Year Ending June 30, 1941, pp. 3–4.

friendly American enterprise after the war. In the longer perspective of history, whoever wins the European war will really be winning an option to participate in the industrialization of Asia."[9] South America is another industrial frontier offering stupendous opportunities for the importation of capital and investment. Experience during the war indicates that the Latin American countries' export difficulties can be solved with relative ease if a high national income and prosperity prevails in the United States.[10]

Apart from the demand for capital, the restoration of peace will, in all countries, set free a huge backlog of postponed demand for consumers goods. To the extent to which this demand does not become effective through the utilization of wartime savings, it must be made effective through dismissal wages, liberal unemployment compensation and related policies designed to strengthen consumers' purchasing power. The time will then arise for a reconsideration of the adequacy of the provisions for the aged and for drafting a program of liberal family allowances. The integration of these policies with a vigorous fiscal program designed to stimulate the rate of consumption will require greater progressiveness of the tax system and the elimination of wartime taxes which restricted consumption and encouraged saving.[11] Since the rich tend to consume a much smaller proportion of their incomes than the poor, it will be helpful if the war has not caused the rich to become richer and the poor poorer. If the war, on the other hand, has led to a slight reduction in the inequality of wealth and incomes, this will contribute to preventing the return of excessive disproportions of saving and investment as they occurred during the 'thirties.

The postwar problem should be envisaged in the same keen and daring spirit which John Maynard Keynes expressed when he appraised the economic consequences of the destruction brought about by the fury of war in his native land.

I don't think that there is very much to be afraid of. Damage of this kind, up to a point, is an opportunity. It is only when it gets beyond

[9] Eliot Janeway, "Roosevelt vs. Hitler. The U.S. Wages World Diplomatic War," *Life*, May 5, 1941, p. 103.

[10] See above, pp. 313f.

[11] See above, p. 327.

a certain point that it becomes a disaster. I am sure that what has happened up to date is an opportunity, and it can go a great deal further before it becomes a real disaster. It is a question of materials and manpower—not of finance. The humbug of finance is not what it was. It rears a very cautious and timid head today, and I don't believe it will be the obstacle it was in 1919 and the succeeding years.[12]

[12] London *Times*, February 5, 1941.

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